Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008 – Isle of Wight

1. Introduction

Analysis presented in this report provides an overview of beach changes and wave and tidal measurements since the commencement of the Southeast Strategic Regional Coastal Monitoring Programme. The first beach surveys took place during the winter of 2003 and 2004 and changes are reported until spring 2007 and 2008. As there is now over 5 years worth of monitoring data for all profile sites, this report provides an overview of 5 yearly change, using both the topographic and bathymetric baseline data.

Data are presented at several levels:

- Process cell summary of percentage and actual profile change from 2007 to 2008
- Process cell summary of percentage and actual profile change from 2003/04 to 2007/08
- Detailed beach profile change from 2007 to 2008
- Detailed beach profile change from 2003/04 to 2008
- Difference model from topographic baseline surveys in 2003/04 and 2008
- Difference model from bathymetric surveys from 2004 to 2006
- Change in position of Mean High Water (MHW)
- 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.

Difference models have been produced where there are at least two baseline surveys to compare. Where only one baseline survey exists, the data has been modelled into a Digital Terrain Model (DTM) and overlayed on the 2005 aerial photography. In addition, the topographic baseline data has been used to extract the level of MHW from each baseline data set 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 artifact 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 over time 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 artifact of the accuracy of the source data. Lidar is particularly ineffective at identifying sharp edges or steep slopes eg. 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.

2. **Hydrodynamic data**
   a. **Waves**
   A directional Waverider buoy was first deployed Sandown Bay in June 2003.
   The full wave report is given at Annex A.
   b. **Tides**
   A tide gauge was installed on Sandown Pier in March 2007 with kind permission of the pier owners.

3. **Survey data – topographic**
   The annual change on the Isle of Wight is greatest within the management units of NEW1 to NEW 5, FRE 2 to FRE 4 and SAN 2 to SAN 8. All these units show notable erosion or accretion. The units NEW 1 to NEW 5 and FRE 2 to FRE 4 indicate erosion. Within Sandown Bay there is accretion in the central part of the Bay and erosion at the southern end. The changes seen over the last 5 years show a similar pattern to the annual changes with additional areas of erosion apparent at TOT 2 and 3 and RYD 7 and 8. Sandown Bay indicates erosion at the southern end and accretion in the central and northern sections of the Bay.
   Dates of surveys are shown in Annex E and the detailed topographic survey report is given at Annex F.

4. **Survey data – bathymetric**
   The detailed bathymetric survey report is given at Annex G.

<table>
<thead>
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<th>Annex</th>
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<tr>
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<td>High Level Report – field data collection (SCOPAC)</td>
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<td>Annex F</td>
<td>Topographic Survey Report for Isle of Wight</td>
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<td>Annex G</td>
<td>Bathymetric Survey Report for Isle of Wight</td>
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Explanatory Notes
Sandown Pier Wave Gauge

Location
OS: 459964E 83835N
WGS84: Latitude: 50°65.111’N  Longitude: 01°15.316’W

Water Depth
N/A

Instrument Type
Rosemount WaveRadar Rex

Data Quality

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Tables and plots of these values, together with the minimum and maximum values and the standard deviation are available on the website.

5 highest storm events in 2007/8

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<th>Tz (s)</th>
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*Tidal information is obtained from the nearest recording tide gauge (the WaveRadar also measures tides). The surge shown is the residual at the time of the highest Hs. The maximum tidal surge is the largest positive surge during the storm event.
Distribution plots

The distribution of wave parameters is shown in the accompanying graphs of:
- Percentage of occurrence of $H_s$, $T_p$, $T_z$ and Direction from June 2007 to May 2008
- Monthly time series of significant wave height (the red line is the storm threshold)
- Incidence of storms during the reporting period and all previous years. Storms are defined using the Peaks-over-Threshold method. The highest $H_s$ of each storm is shown.

Summary

There was a marked increase in storms exceeding the threshold of 1.4m during this reporting year, including the highest significant wave height recorded at Sandown Pier since the instrument was deployed, measured at 2.0m on 18 November 2007.
Sandown Bay Directional WaveRider Buoy

Location
OS: 461654E  83776N
WGS84: Latitude: 50°39.0240’N  Longitude: 01°07.7555’W

Water Depth
10.7m CD

Instrument Type
Datawell Directional WaveRider Buoy Mk III

Data Quality

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* Tidal information is obtained from the nearest recording tide gauge (the WaveRadar Rex on Sandown Pier). 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.
Distribution plots

The distribution of wave parameters is shown in the accompanying graphs of:
- Wave roses (Direction vs. $H_s$) for reporting year and all data
- Percentage of occurrence of $H_s$, $T_p$, $T_z$ and Direction from June 2007 to May 2008
- Monthly time series of significant wave height (the red line is the storm threshold)
- Incidence of storms during the reporting period and all previous years. Storms are defined using the Peaks-over-Threshold method. The highest $H_s$ of each storm is shown.

Summary

After a relatively quiet year previously, this reporting year saw an increase in storms, both in frequency and magnitude, and was very similar to the 2005/2006 reporting year. The months of January and February were noticeably rough. Dominant storm wave direction was from the south.

The storm on 10 March 2008 was a particularly notable event along the whole English Channel, and coincided with equinoctial spring tides. At most other Waverider sites in the western and central English Channel, the 10 March storm was the highest recorded since the buoys were deployed. At Sandown, however, it was only the second highest recorded storm ($H_s \sim 3.63m$), with higher waves being recorded on 2 December 2005 ($H_s \sim 3.79m$).
Direction vs. $H_s$ for June 2007 to May 2008 (this reporting year)

Direction vs. $H_s$ for July 2007 to May 2008 (all data)
Storms at Sandown Bay from Jun 2007 to May 2008
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**Topographic surveys**

**Bathymetric surveys**
### Sub-cell Mgt Unit Post-storm

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### Key:
- **Completed on time**
- **Surveyed, but data not submitted**
- **Completed late**
- **Not required**

### Notes:
1. Variable baseline survey completion dates due to better tidal conditions
2. Profile sequence delayed to match previous year's survey
3. Area difficult to survey - covered by annual lidar
4. Area dangerous to survey (loose boulders, seaweed strewn), covered by annual lidar
5. Added to survey programme 2007
6. Access only during summer
7. Delayed due to bad weather
8. Baseline survey brought forward due to beach operational reasons

### Completed on time
- **Surveyed, but data not submitted**
- **Completed late**
- **Not required**

### Reasons for late/missing delivery:
- (7) Delayed due to bad weather
- (8) Baseline survey brought forward due to beach operational reasons
Annex F – Topographic Survey Report for the Isle of Wight

1. Introduction
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 level, although this is not been possible for much of the historic data at many of the sites. Where possible, longer-term records from earlier programmes are also presented in the profile analysis, although historical data was often collected using significantly different survey techniques, specifications and even datums. Continuity of record has been attempted but is not always possible.

A full time series of plotted beach profiles are shown superimposed and relative to a Master Profile for each profile location (on the accompanying CD). The Master Profile provides the basis for calculation of beach cross-section area changes. Where possible, identical depth boundaries have been used for all profiles within a 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
As part of the monitoring programme specification, each management unit receives a full topographic baseline survey once every 5 years, with the exception of BMP sites which receive an annual baseline. Baseline surveys include a full profile survey at 50m intervals and continuous spot height data collected at approximately 1m intervals across the whole beach to the level of MLWS. This continuous data also includes a feature code for each spot height data point recorded. Where possible the feature code data has been used to provide a sediment distribution map for each management unit.

Where there are at least two baseline surveys for each management unit a topographic difference model has been produced based on the spot height elevations. The raw spot height data has been processed into a grid model and successive models have been subtracted from one another to produce a difference model for the management unit. This spot height data from each survey has also been used to approximate the level of MHW along each management unit to highlight change. In some cases, where there is no topographic baseline data collected on foot the information described above may be derived from lidar data.
2. Condition of process sub-cell
The Beach Change Summary maps contain an at-a-glance condition of the whole of the Isle of Wight, with the lines representing the average accretion, no change or erosion for each Management Unit.

3. Condition of individual Management Units
Changes within each Management Unit are summarised on seven maps: Beach change map (Spring to Spring), beach change map (Baseline to Spring), topographic difference model maps, MHW line maps, surface sediment distribution maps and bathymetric difference model maps or DTMs.

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 2007 to spring 2008 and from baseline 2003/04 to spring 2008.

**TOT 3: West Totland to Colwell Chine**
**Spring 2007 to Spring 2008**
This management unit shows predominantly accretion, with some minor localised erosion.

**Baseline Spring 2003 to Spring 2008**
The southern and northern sections of this management unit show predominantly accretion, although the central section of the bay has incurred considerable erosion.

**Topographic Difference Model, 2003 to 2007**
This beach has shown very little change, with only localised pockets of erosion and accretion.

*Net sediment balance above MLWS from 2003 to 2007: -2,104 m³*

**TOT 4: Colwell Chine to Fort Albert**
**Spring 2007 to Spring 2008**
A large proportion of this beach shows no change or accretion. There are, however localised pockets of slight erosion in the centre.

**Baseline Spring 2003 to Spring 2008**
Over the long timescale, profiles in the south of the unit show no change, whilst in the centre of the unit there is small scale erosion. In the North the profiles are accreting.

**Topographic Difference Model, 2003 to 2007**
There is little change occurring in this management unit. There are small, localised areas of erosion and accretion.

*Net sediment balance above MLWS from 2003 to 2007: 2,204 m³*
NEW 1: Fort Albert to Fort Victoria
Spring 2007 to Spring 2008
The majority of the beach is stable showing accretion or no change. Only 5d00101 shows erosion.

Baseline Spring 2003 to Spring 2008
Over the longer timescale, the majority of the beach is accreting with only 5d00101 eroding.

Topographic Difference Model, 2003 to 2007
The beach shows little change in the area which is regularly profiled. There are significant pockets of erosion and accretion in the south east of the management unit.

Net sediment balance above MLWS from 2003 to 2007: -1,853 m$^3$

NEW 2: Fort Victoria to Norton Spit
Spring 2007 to Spring 2008
The sandy section has shown little change over the past year. Whilst the rocky section indicates moderate erosion, this represents less than 0.5 m$^2$ loss since the overall beach CSA is very small.

Baseline Spring 2003 to Spring 2008
The sandy section has shown little change over the past 5 years. The pattern for the rocky section reflects small changes in the very small area of mobile sediment.

Topographic Difference Model, 2003 to 2007
The difference model indicates that the majority of the beach shows no change. There are however isolated regions of accretion around the pier and to the east of the management unit and a large area of erosion in the west of the management unit.

Net sediment balance above MLWS from 2003 to 2007: 778 m$^3$

NEW 3: Yarmouth Harbour
Spring 2007 to Spring 2008
This section of beach is stable.

Baseline Spring 2003 to Spring 2008
Over the longer timescale, this section is stable and shows slight accretion.
Topographic Difference Model, 2003 to 2007
The difference model shows there is significant erosion against the harbour arm in the eastern section of the beach. Other than this, the beach is stable overall with patches of accretion.

Net sediment balance above MLWS from 2003 to 2007: 597 m³

NEW 5: The Common to Marine Drive, Bouldnor
Spring 2007 to Spring 2008
This section shows patchy, localised accretion and erosion.

Baseline Spring 2003 to Spring 2008
Over the longer timescale this section of beach has been stable or accreting.

Topographic Difference Model, 2003 to 2007
The difference model of this region shows little or no change. This is due to the beach being very rocky and narrow, with little mobile sediment.

Net sediment balance above MLWS from 2003 to 2007: -432 m³

NEW 11: Gurnard luck
Spring 2007 to Spring 2008
This section of beach has accreted over the past year.

Baseline Spring 2003 to Spring 2008
The longer timescale analysis shows the beach has remained stable.

Topographic Difference Model, 2003 to 2007
There is accretion occurring in the east of this section, and a section of erosion occurring around MLWS in the centre.

Net sediment balance above MLWS from 2003 to 2007: -281 m³

NEW 12: West Gurnard to Egypt Point
Spring 2007 to Spring 2008
This section of beach has remained predominantly stable over the past year, with the exception of 5d00281.

Baseline Spring 2003 to Spring 2008
This unit is generally stable or accreting slightly, except for some minor erosion at 5d00299.
Topographic Difference Model, 2003 to 2007
The difference model does not identify any significant erosion or accretion. The beach appears stable with very little change.

*Net sediment balance above MLWS from 2003 to 2007: -2,856 m³*

NEW13: Egypt Point to Cowes Castle
Spring 2007 to Spring 2008
This section has been stable, during the past year.

Baseline Spring 2003 to Spring 2008
Since 2003, the unit shows no change over the past 5 years.

Topographic Difference Model, 2003 to 2007
There is has been a buildup of sediment in the far east of the unit over the past 5 years. The remainder of the unit has shown little change.

*Net sediment balance above MLWS from 2003 to 2007: 474 m³*

NEW 15: Cowes Breakwater to Old Castle point
Spring 2007 to Spring 2008
Over the past year, this unit has shown no change.

Baseline Spring 2003 to Spring 2008
The long term analysis of this unit shows a general trend of minor accretion.

Topographic Difference Model, 2003 to 2007
There is localised accretion at the back of the beach, but the majority of the beach shows no change over the past 5 years.

*Net sediment balance above MLWS from 2003 to 2007: 6,316 m³*

RYD 3: Wootton Creek
Baseline Spring 2007 to Spring 2008
Over the past year, the profiles have shown no change

*Only one baseline survey has been undertaken in this area, so there is no topographic difference model.*
**RYD 4: Wootton Creak to Pelamfield**  
**Baseline Spring 2007 to Spring 2008**  
Over the past year, the majority of profiles have shown no change, with only 5d00363 showing accretion.

*Only one baseline survey has been undertaken in this area, so there is no topographic difference model.*

**RYD 5: Pelhamfield to Puckpool Hill**  
**Spring 2007 to Spring 2008**  
This section of the beach is stable. All profiles show no change or accretion with the exception of 5d00444 in the west.

**Baseline Spring 2004 to Spring 2008**  
This section is remaining stable over the long timescale. Profile 5d00405 is accreting due to the build up of sediment on the offshore sand bar.

**Topographic Difference Model, 2003 to 2008**  
To the west of the pier, there is a general pattern of erosion in the intertidal area. The back of the beach has patches of erosion and accretion in the far west of the unit, and more widespread erosion closer to the pier.

East of the pier there is a sizeable region of accretion at the mouth of Ryde harbour. The sand flats show a pattern of patchy erosion and accretion, representing the movement of sediment around the flats. Towards Puckpool Point, the upper beach as accreted and the intertidal area has eroded.

*Net sediment balance above MLWS from 2003 to 2007: -268,742 m³*

**RYD 6: Puckpool Hill to Salterns Road, Seaview**  
**Spring 2007 to Spring 2008**  
All profiles in this management unit show no change or accretion in the past year.

**Baseline Spring 2004 to Spring 2008**  
Over the longer timescale, although all profiles have lost some CSA, the losses are less than 5% of the overall CSA.

**Topographic Difference Model, 2003 to 2008**  
The difference model for this unit shows a predominant pattern of erosion. There is particular erosion to the west of the rock groyne in the centre.

*Net sediment balance above MLWS from 2003 to 2007: 9219 m³*
**RYD 7: Salterns Road to Pier Road, Seaview**  
*Spring 2007 to Spring 2008*  
This unit has eroded in the northern section but shown little change in the south.

**Baseline Spring 2003 to Spring 2008**  
Since 2003, both profiles have eroded.

**Topographic Difference Model, 2003 to 2008**  
In this unit the foreshore is eroding and the back of the beach is accreting. There appears to be particular erosion of the foreshore to the west of the concrete groyne in the centre of the unit.

*Net sediment balance above MLWS from 2003 to 2007: 309 m³*

**RYD 8: Pier Road to Horestone Point**  
*Spring 2007 to Spring 2008*  
This section has been stable during the past year.

**Baseline Spring 2004 to Spring 2008**  
Over the longer timescale, this section has accreted in the south and eroded slightly in the north.

**Topographic Difference Model, 2003 to 2008**  
There is erosion in the north of the unit, particularly at the back of the beach, south of the concrete sea wall. There is some foreshore accretion in the south of the unit.

*Net sediment balance above MLWS from 2003 to 2007: 1,410 m³*

**RYD 9: Horestone Point to St Helens Church**  
*Spring 2007 to Spring 2008*  
The northern profile show no change while the southern profile is eroding.

**Baseline Spring 2004 to Spring 2008**  
All of the profiles in this management unit are accreting or showing no change.

**Topographic Difference Model, 2003 to 2008**  
In the northern section of RYD 9, the back of the beach is accreting, particularly in the south. There are localised regions of erosion and accretion on the foreshore, representing the movement of sediment around the large inter-tidal region.
In the southern section of the management unit, there is accretion at the back of the beach and erosion in the foreshore, suggesting that there is a bar and trough system operation in this area.

*Net sediment balance above MLWS from 2003 to 2007: 21,473 m³*

**RYD 10: The Duver, St Helens**  
**Spring 2007 to Spring 2008**  
The centre of this section has shown no change, with the edges of the unit showing accretion.

**Baseline Spring 2004 to Spring 2008**  
Over the longer timescale, the pattern is accretion in the north, with erosion towards Bembridge Harbour.

**Topographic Difference Model, 2003 to 2008**  
The north of this unit is strongly accreting. Towards the end of the sea wall the trend becomes erosional, with a couple of groyne bays displaying significant erosion at the back of the beach. At the harbour mouth, the beach is accreting at the front of the spit and eroding in the lee.

*Net sediment balance above MLWS from 2003 to 2007: 2,022 m³*

**RYD 12: Bembridge Point to Foreland Fields**  
**Spring 2007 to Spring 2008**  
All profiles in this unit have remained stable or accreted slightly over the past year.

**Baseline Spring 2004 to Spring 2008**  
Over the longer timescale, the majority of profiles have shown accretion or no change. Only 5d00610, in the southern edge of the unit has shown erosion.

**Topographic Difference Model, 2003 to 2008**  
At the harbour end of the unit, there is a region of significant erosion along the edge of the dredged navigation channel. To the east of this erosion, there is a localised area of accretion. The remainder of the intertidal zone in this area shows scattered pockets of erosion. At the back of the beach, there is an erosional trend in the west, but with increased localised accretion towards the east.

There is less change occurring around the Bembridge Ledges. The northern section shows mainly localised areas of erosion, but this gives way to increased accretion around the lifeboat station and to the south.
In the far south of the management unit, there is a section of concentrated erosion along the back of the beach, in between profiles 5d00599 and 5d00604. The remainder of this section shows very little change, other than small pockets of erosion and accretion.

*Net sediment balance above MLWS from 2003 to 2007: -89,290 m³*

**RYD 13: Whitecliff Bay**

*Spring 2007 to Spring 2008*

The eastern profile is accreting, whilst the western profile in the bay is eroding.

**Baseline Spring 2004 to Spring 2008**

2004 baseline data did not reach depth

**Topographic Difference Model, 2003 to 2007**

The east of the unit shows signs of erosion occurring at the back of the beach, with concentrated regions of accretion occurring on the foreshore.

In the sandy bay the pattern of sediment transport from south to north is evident, with sand being eroded from the south and deposited in the north.

*Net sediment balance above MLWS from 2003 to 2007: 1,427 m³*

**SAN 1: Culver Cliff**

*Spring 2007 to Spring 2008*

No data

**Baseline Spring 2004 to Spring 2008**

No data

**Topographic Difference Model, 2003 to 2007**

This difference model highlights the bar and trough system operating on this section of beach. Sediment has been eroded from the centre of the beach and deposited onto the back of the beach and the offshore bar.

*Net sediment balance above MLWS from 2003 to 2007: 11,785 m³*

**SAN 2: Culver Cliff to Yaverland**

*Spring 2007 to Spring 2008*

No data

**Baseline Spring 2004 to Spring 2008**

No data
Topographic Difference Model, 2003 to 2007
In the east of the management unit, there is a narrow band of intense erosion at the back of the beach fronted by a large band of accretion. In the west, erosion is occurring in the foreshore, with evidence of accretion occurring at the back of the beach.

Net sediment balance above MLWS from 2003 to 2007: 1,760 m³

SAN 3: Yaverland
Spring 2007 to Spring 2008
Profile 5e00079 has eroded slightly, while profile 5e00075 has shown no change.

Baseline Spring 2003 to Spring 2008
The analysis shows erosion has occurred since 2003.

Topographic Difference Model, 2003 to 2007
Similar to SAN 2, there is a pattern of erosion in the centre of the beach and accretion at the back of the back and in the foreshore.

Net sediment balance above MLWS from 2003 to 2007: -959 m³

SAN 4: Sandown Zoo to Fort Street
Spring 2007 to Spring 2008
This section of the beach is stable, all profiles show accretion or no change.

Baseline Spring 2003 to Spring 2008
All profiles in this management unit show accretion over the longer timescale.

Topographic Difference Model, 2003 to 2008
In the east of this management unit there is increased accretion, with only small areas of erosion in the central section. In the west there is a large region of erosion at the back of the beach, adjacent to the groyne, which is fronted by an area of accretion.

Net sediment balance above MLWS from 2003 to 2008: 4,285 m³

SAN 5: Fort Street to Ferncliffe Road
Spring 2007 to Spring 2008
All of the profiles show little change over the past year.

Baseline Spring 2003 to Spring 2008
All profiles along this section show accretion or no change over the longer timescale.
Topographic Difference Model, 2003 to 2008
The predominant pattern in this management unit is accretion. There are pockets of erosion in the east, in the lee of the concrete groyne and a band of erosion in the east near to the pier.

*Net sediment balance above MLWS from 2003 to 2008: 33,780 m³*

**SAN 6: Ferncliffe Road to Hope Beach**

*Spring 2007 to Spring 2008*

The unit shows a predominant trend of erosion over the southern part and accretion in the northern part of the beach.

**Baseline Spring 2003 to Spring 2008**

The north of this section shows a long-term accretional trend, and the south shows a predominantly erosional trend, except for some localised accretion in the south.

**Topographic Difference Model, 2003 to 2007**

The difference model in the north shows predominantly accretional pattern, with just small bands of erosion in the centre of the beach. In the centre of the unit, erosion increases and is particularly intense at the back of the beach. The southern section of the beach is characterised by localised pockets of erosion and accretion.

*Net sediment balance above MLWS from 2003 to 2008: 14,410 m³*

**SAN 7: Hope Beach to Shanklin Chine.**

*Spring 2007 to Spring 2008*

The majority of this section has remained stable over the past year, although 5e00165 in the centre has shown erosion.

**Baseline Spring 2003 to Spring 2008**

The majority of this unit has been stable since 2003, with exception to 5e00165 which has eroded.

**Topographic Difference Model, 2003 to 2007**

The foreshore in the northern section of this unit has accreted behind the concrete groyne whilst the back of the beach in this section has eroded. In the south of the section the opposite has occurred, with accretion occurring at the back of the beach behind the concrete groyne and the foreshore eroding.

*Net sediment balance above MLWS from 2003 to 2008: 8,982 m³*
SAN 8: Shanklin Chime to Horse Ledge
Spring 2007 to Spring 2008
The profiles in the south of this section have eroded, while the profiles in the north have shown no change.

Baseline Spring 2003 to Spring 2008
The longer term pattern is erosion in the south and accretion in the north of the unit.

Topographic Difference Model, 2003 to 2008
The difference model for this unit identifies pockets of accretion in the northern section and an area of foreshore erosion in the south.

Net sediment balance above MLWS from 2003 to 2007: 1,414 m³

VEN 2: Monks Bay to Steephill Cove
Spring 2007 to Spring 2008
This unit has a small beach volume and therefore small changes in cross sectional area can give large percentage changes. This produces patterns of localised erosion or accretion.

Baseline Spring 2003 to Spring 2008
Over the longer time period, the beach to the east of Ventnor Haven is showing localised, marked erosion. The short term build up of sand to the west of Ventnor Haven is not reflected in the longer term, which is overall erosion.

Topographic Difference Model, 2003 to 2007
In the east of this unit, there is a pattern of localised erosion at the back of the beach and larger pockets of accretion in the foreshore. In the west, around Ventnor, there is a more pronounced pattern, with sediment build up against the harbour wall and erosion at the back of beach.

Net sediment balance above MLWS from 2003 to 2008: -24,100 m³

VEN5: Reeth Bay
Spring 2007 to Spring 2008
The majority of profiles show little change, with only 2 profiles in the east showing slight erosion.

Baseline Spring 2003 to Spring 2008
Over the longer time period, the eastern profiles show marked erosion, whilst in the west there is little change.
Only one baseline survey has been undertaken in this area, so there is no topographic difference model.

**FRE 2: Brooke Chime to Compton Chime**

**Spring 2007 to Spring 2008**
Over the shorter timescale, the northern profiles are eroding, and the southern profiles are showing little change.

**Baseline Spring 2003 to Spring 2008**
The central section shows little change. The northern profile is eroding and the southern profile is increasing.

**Topographic Difference Model, 2003 to 2007**
The majority of the management unit is accreting or showing little change. The only erosion is occurring around the northern boundary of the unit.

*Net sediment balance above MLWS from 2003 to 2007: 10,643 m³*

**FRE 4: Freshwater Bay**

**Spring 2007 to Spring 2008**
Over the past year, 5e00495 has shown considerable erosion, while 5e00491 has accreted.

**Baseline Spring 2003 to Spring 2008**
Over the long timescale, 5e00495 has eroded and 5e00491 has shown no change.

**Topographic Difference Model, 2003 to 2007**
There is a trend of marked erosion in the west and accretion in the east.

*Net sediment balance above MLWS from 2003 to 2007: -7 m³*
Annex G – Bathymetric Survey Report for the Isle of Wight

1. Introduction
The analysis has been conducted for those areas where there are a minimum of two bathymetric surveys recorded. Where possible, the changes are recorded up to 1km offshore from the MLWN contour, although in some areas this is not always possible. Where only one survey exists of a particular area, no analysis is possible and the data is presented as a DTM. In some cases, previous survey data may have been collected using different survey techniques or specifications and thus direct comparison with the latest survey is difficult. Under these circumstances only the latest survey is presented and no difference model is included.

The bathymetric data is now collected using an RTK tide correction to give real time tidal corrections for the data, rather than measured tides. Some previous data (from approximately pre-2005) may have a tidal correction derived from another source which is now considered to be unreliable to give sufficient accuracy for direct survey comparison in most cases. It should be noted that the accuracy associated with bathymetric data collection is approximately ±0.5m at best. Therefore differences of <1m should be treated as illustrative, particularly over rocky substrates. 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 over time or with other information.

2. Condition of individual Management Units

TOT2: South east Alum Bay to West Totland
Bathymetric difference model changes 2004 – 2006
Erosion appears to be the dominant process in this unit and is particularly evident within approximately 200m of the beach. Further offshore there are small areas of minor erosion and limited pockets of accretion.

TOT 3: West Totland to Colwell Chine
Bathymetric difference model changes 2004 – 2006
This unit shows minor patches of erosion and accretion, with erosion the more dominant process. The greatest change is occurring beyond 500m offshore.

TOT 4: Colwell Chine to Fort Albert
Bathymetric difference model changes 2004 – 2006
The dominant process in this unit appears to be erosion, the majority of which is less than 0.5m. There is a small patch of accretion in the eastern part of this unit at approximately 500m offshore.
NEW 3: Yarmouth Harbour
Bathymetric difference model changes 2004 – 2006
This unit shows pockets of erosion and accretion. Within the harbour entrance there appears to have been erosion up to 1m on the western edge and accretion up to 2m on the opposite side of the harbour entrance.

NEW 4: Royal Solent Yacht Club to The Common, Yarmouth
Bathymetric difference model changes 2004 – 2006
This unit shows very little change in the 400m closest to the shore. Further out, there is some evidence of erosion up to 1.5m.

NEW 5: The Common to Marine Drive, Bouldner
Bathymetric difference model changes 2004 – 2006
There is very little change within this unit. There is a band of minor erosion and accretion evident at approximately 300m offshore.

NEW 6: Marine Drive to Hamstead Duver
Bathymetric difference model changes 2004 – 2006
This unit shows pockets of erosion and accretion, with erosion more dominant.

NEW 7: Newtown Creek
Bathymetric difference model changes 2004 – 2006
This unit has remained relatively stable, with some small areas of both erosion and accretion. At the entrance to the creek there is evidence of accretion at the western edge and erosion at the eastern edge, suggesting that the mouth of the creek has migrated eastwards.

NEW 8: Brickfield Farm to Thorness Wood
Bathymetric difference model changes 2004 – 2006
There has been little change in this unit, particularly close to the beach. There are some small areas of slight accretion and erosion further out.

NEW 9: Thorness Marshes
Bathymetric difference model changes 2004 – 2006
There has been very little change in this unit. There has been a small amount of accretion close to the shore at the western end of the unit.

NEW 12: West Gurnard to Egypt Point
Bathymetric difference model changes 2004 – 2006
Close to the beach the dominant process appears to be accretion. Further from the beach there is evidence of some erosion.

NEW 15: Cowes Breakwater to Old Castle Point
Bathymetric difference model changes 2004 – 2006
This unit shows very little change. Minor patches of erosion and accretion are evident some distance from the shore (approximately 400m offshore).

RYD 1: Old Castle Point to Rock Point
Bathymetric difference model changes 2004 – 2006
This unit is generally stable. There are some small pockets of minor erosion and accretion in the western part of this unit.

RYD 2: Rock Point to Wootton Rocks Woodside
Bathymetric difference model changes 2004 – 2006
This unit is generally stable. There are some small pockets of minor erosion.

RYD 3: Wootton Creek
Bathymetric difference model changes 2004 – 2006
Within this unit there is a mixed pattern showing pockets of both erosion and accretion. Around the ferry terminal erosion appears to be the dominant process, whilst further from the terminal there appears to be accretion within the channel. Further up the creek there minor patches of accretion dominate.

RYD 4: Wootton Creek to Pelamfield
Bathymetric difference model changes 2004 – 2006
This unit shows very little change in bathymetry.

RYD 5: Pelamfield to Puckpool Hill
Bathymetric difference model changes 2004 – 2006
This unit is generally stable. There are some small pockets of minor accretion and erosion in the central section of the unit and a small amount of erosion at the end of the Pier.

RYD 6: Puckpool Hill to Salterns Road, Seaview
Bathymetric difference model changes 2004 – 2006
This unit is generally stable. There are some small pockets of minor accretion and erosion approximately one kilometre offshore.

RYD 7: Salterns Road, Seaview to Pier Road, Seaview
Bathymetric difference model changes 2004 – 2006
There has been minimal change in this unit.

**RYD 8: Pier Road, Seaview to Horestone Point**
Bathymetric difference model changes 2004 – 2006
This unit is generally stable. There are some very small sporadic pockets of minor accretion and erosion.

**RYD 9: Horestone Point to St. Helens Tower**
Bathymetric difference model changes 2004 – 2006
This unit shows a general trend of erosion.

**RYD 10: The Duver, St. Helens**
Bathymetric difference model changes 2004 – 2006
This unit shows a band of erosion of up to 1.5m approximately 300 to 400m offshore. Behind the band of erosion there is evidence of some small pockets of accretion. Closer to the beach the unit appears stable.

**RYD 12: Bembridge Point to Forelands Fields**
Bathymetric difference model changes 2004 – 2006
This unit shows pockets of erosion and accretion, with erosion more dominant.

**SAN 1: Culver Cliff**
Bathymetric difference model changes 2004 – 2006
There is little change within this unit but there is evidence of small pockets of both erosion and accretion, with erosion being more dominant in the west of the unit.

**SAN 2: Culver Cliff to Yaverland**
Bathymetric difference model changes 2004 – 2006
Close to the beach the dominant process appears to be accretion. This increase in material is complementary to a loss of material from the beach evident in the topographic difference models so may be due to the loss of material from the beach. Further offshore there are pockets of erosion.

**SAN 3: Yaverland**
Bathymetric difference model changes 2004 – 2006
Close to the beach the dominant process appears to be accretion. Behind the band of accretion there are pockets of erosion. Beyond 400m offshore there is a combination of minor erosion and accretion.
SAN 4: Sandown Zoo to Fort Street, Sandown
Bathymetric difference model changes 2004 – 2006
There is evidence of erosion and accretion in this unit, though erosion appears to be the dominant process. Most change is occurring within 400m of the beach.

SAN 5: Fort Street to Ferncliff Road, Sandown
Bathymetric difference model changes 2004 – 2006
There is evidence of erosion and accretion in this unit, though erosion appears to be the dominant process. Most change is occurring within 400m of the beach.

SAN 6: Ferncliff Road to Hope Beach
Bathymetric difference model changes 2004 – 2006
There has been both erosion and accretion in this unit. Along the shoreline accretion has occurred, with an area of erosion behind this.

SAN 7: Hope Beach to Shanklin Chine
Bathymetric difference model changes 2004 – 2006
The dominant process throughout this unit appears to be erosion.

SAN 8: Shanklin Chine to Horse Ledge
Bathymetric difference model changes 2004 – 2006
The dominant process throughout this unit appears to be erosion, particularly within 400m of the beach. Further offshore there are small pockets of erosion and some pockets of accretion in the northern part of the unit.
Beach Change Summary (1 of 2) - 2007 to 2008

Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%

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

- **Erosion**
  - 16 - 30%
  - > 30%

% Change in Cross-sectional Area

MU boundary

km
Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

**Accretion**
- > 30%
- 16 - 30%
- 5 - 15%
- Less than 5%

**Erosion**
- 5 - 15%
- 16 - 30%
- > 30%

No Change

% Change in Cross-sectional Area

MU boundary

% Change in Cross-sectional Area

km
% Change in Cross-sectional Area (Baseline 2003/4 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

**MU boundary**

% Change in Cross-sectional Area

MU boundary

km

Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Beach Change Summary (1 of 2) - 2003/4 to 2008

SCOPAC - IOW
% Change in Cross-sectional Area (Baseline 2003/04 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

% Change in Cross-sectional Area
Beach Change Summary (1 of 2) - 2007 to 2008

SCOPAC - IOW

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

No Change

- **MU Change**
  - Actual Change in Cross-sectional Area

- **MU boundary**

- **km**

Annual Report 2008
Beach Change Summary (1 of 2) - 2003/4 to 2008

Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

% Change in Cross-sectional Area (Baseline 2003 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

No Change

MU boundary

Actual Change in Cross-sectional Area

km

Beach Change Summary (1 of 2) - 2003/4 to 2008

SCOPAC - IOW
Actual Change in Cross-sectional Area (Baseline 2003/04 to Spring 2008)

- **Accretion**
  - > 30 m$^2$
  - 15 - 30 m$^2$
  - 5 - 15 m$^2$
- **Erosion**
  - Less than 5 m$^2$
  - 5 - 15 m$^2$
  - 15 - 30 m$^2$
  - > 30 m$^2$

No Change
- Less than 5 m$^2$
- 5 - 15 m$^2$

**MU boundary**

<table>
<thead>
<tr>
<th>% Change in Cross-sectional Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>MU boundary</td>
</tr>
</tbody>
</table>

**km**

Actual Change in Cross-sectional Area
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
- **Erosion**
  - > 30%

MU boundary

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography

T O T 3  ( 1  of  2 )  -  B e a c h  C h a n g e
**Southeast Strategic Regional Coastal Monitoring Programme**

**Annual Report 2008**

### Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

#### No Change

- 5 - 15%
- Less than 5%

---

**MU boundary**

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

- 5d00056 (2)
- 5d00053 (1)
- 5d00051 (-10)
- 5d00048 (-7)
- 5d00045 (-2)
- 5d00043 (1)
- 5d00040 (3)
- 5d00037 (6)
- 5d00034 (2)
- 5d00032 (0)

---

**2005 Aerial Photography**

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**T O T 3 (1 of 2) - Beach Change**

---

**SCOPAC - IOW**
Change in Elevation (m) between April 2004 and May 2007

ACCRETION No Change EROSION
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%

- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%

- **Erosion**
  - > 30%

---

Actual Annual Change in Cross-sectional Area (m²)

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2005 Aerial Photography

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Annual Report 2008

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SCOPAC - IOW

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TOT3 (2 of 2) - Beach Change
Annual Report 2008

SCOPAC - IOW

MHW Position
0.47m OD

April 2004
May 2007

2005 Aerial Photography

Southeast Strategic Regional Coastal Monitoring Programme

TOT3 (2 of 2) - Mean High Water Position

0 100 200 m

±E
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

SCOPAC - IOW

2005 Aerial Photography

Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

0 100 200 m

T O T 3 (2 of 2) - S u r f a c e S e d i m e n t D i s t r i b u t i o n
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

**No Change**
- Less than 5%
- 5 - 15%
- 16 - 30%
- > 30%

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
Change in Elevation (m) between February 2003 and July 2007:

- **ACCRETION**
- **No Change**
- **EROSION**

Legend:
- >= 3
- 2.5-3
- 2
- 2.5
- 1.5-2
- 1
- 1.5
- 0.5-1
- 0.25-0
- <= 0.25
- <= 0.5
- <= 1
- <= 1.5
- <= 2
- <= 2.5
- <= 3

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

TOT4 - Mean High Water Position

Annual Report 2008

SCOPAC - IOW

0 100 200 m

MHW Position
0.47m OD

February 2004 - July 2007

2005 Aerial Photography
Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

<table>
<thead>
<tr>
<th>Change</th>
<th>Symbol</th>
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<tbody>
<tr>
<td>Accretion</td>
<td>&gt; 30%</td>
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</tr>
<tr>
<td></td>
<td>&gt; 30%</td>
</tr>
</tbody>
</table>

MU boundary

5g00212 (3)

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%
- **Erosion**

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2005 Aerial Photography

Annual Report 2008

Southeast Strategic Regional Coastal Monitoring Programme
Change in Elevation (m) between February 2003 and July 2007

ACCRETION No Change EROSION

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

NEW 1 - Beach Change

SCOPAC - IOW

2005 Aerial Photography

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- Accretion
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
- Erosion
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
NEW1 - Topographic Difference Model (2003 - 2007)

Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Change in Elevation (m) between September 2003 and August 2007

ACCRETION  No Change  EROSION

2005 Aerial Photography
NEW1 - Mean High Water Position

0.82m OD
March 2004
Oct 2007

MHW Position
2005 Aerial Photography

Southeast Strategic Regional Coastal Monitoring Programme
Annual Report 2008

NEW1 - Mean High Water Position

SCOPAC - IOW
**Southeast Strategic Regional Coastal Monitoring Programme**

**Annual Report 2008**

---

**NEW2 - Beach Change**

**SCOPAC - IOW**

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**Annual % Change in Cross-sectional Area (Baseline 2007 to Spring 2008)**

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **Erosion**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

---

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

- **5g00212 (3)**

---

**2005 Aerial Photography**
Change in Elevation (m) between September 2003 and August 2007

ACCRETION  No Change  EROSION
NEW2 - Mean High Water Position

SCOPAC - IOW

MHW Position
0.82m OD

January 2004
September 2007

2005 Aerial Photography
Annual % Change in Cross-sectional Area (Baseline 2003 to Spring 2008)

- **Acretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

- **Erosion**
  - No Change

MU boundary

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

NEW3 - Topographic Difference Model (2003 - 2007)

Change in Elevation (m) between March 2003 and October 2007

ACCRETION No Change EROSION

2005 Aerial Photography

±

Annual Report 2008

SCOPAC - IOW
Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
- **Erosion**
  - > 30%

**MU boundary**

Actual Annual Change in Cross-sectional Area (m²)
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

NEW5 (1 of 2) - Topographic Difference Model (2003 - 2007)

SCOPAC - IOW
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Baseline 2003 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%

- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

- **Erosion**

MU boundary

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
Change in Elevation (m) between March 2003 and Oct 2007

- ACCRETION
- No Change
- EROSION
NEW5 (2 of 2) - Mean High Water Position

SCOPAC - IOW

Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

±

Annual Report 2008

SCOPAC - IOW

2005 Aerial Photography

MHW Position
0.82m OD

August 2004

February 2007
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%

- **Erosion**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

No Change

MU boundary

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008


Change in Elevation (m) between March 2003 and October 2007

0 100 200 m

2005 Aerial Photography

SCOPAC - IOW
**Southeast Strategic Regional Coastal Monitoring Programme**

**Annual Report 2008**

**Southeast Strategic Regional Coastal Monitoring Programme**

**Annual % Change in Cross-sectional Area (Baseline 2003 to Spring 2008)**

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
- **No Change**
- **Erosion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

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

**2005 Aerial Photography**
Change in Elevation (m) between March 2003 and October 2007

-3 -2.5 -2 -1.5 -1 -0.5 0 0.5 1 1.5 2 2.5 3

2005 Aerial Photography
NEW12 (1 of 2) - Mean High Water Position

2005 Aerial Photography

MHW Position
1.26m OD

August
March 2003
Southeast Strategic Regional Coastal Monitoring Programme

SCOPAC - IOW

NEW12 (1 of 2) - Surface Sediment Distribution

Annual Report 2008

2005 Aerial Photography

Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

0 100 200 m
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%

- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

- **Erosion**

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

Annual Report 2008

SCOPAC - IOW
Change in Elevation (m) between March 2003 and October 2007

-3 -2.5 -2 -1.5 -1 -0.5 -1 -2 -2.5 -3

Erosion

Accretion

No Change
NEW12 (2 of 2) - Mean High Water Position

MHW Position
1.26m OD

August 2007
March 2003

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Baseline 2003 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%
- **No Change**
  - Less than 5%

---

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

MU boundary

5g00212 (3)

---

2005 Aerial Photography

NEW13 - Beach Change

SCOPAC - IOW

Annual Report 2008
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%

- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

- **Erosion**
  - > 30%
  - 16 - 30%
  - 5 - 15%

Actual Annual Change in Cross-sectional Area ($m^2$)

MU boundary

2005 Aerial Photography

NEW15 - Beach Change

SCOPAC - IOW
**Southeast Strategic Regional Coastal Monitoring Programme**

**Annual Report 2008**

---

**NEW15 - Beach Change**

**Southeast Strategic Regional Coastal Monitoring Programme**

**Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)**

<table>
<thead>
<tr>
<th>Change Type</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Accretion</td>
<td>&gt; 30%</td>
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<td>16 - 30%</td>
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<tr>
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<td>&gt; 30%</td>
</tr>
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</table>

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**Actual Annual Change in Cross-sectional Area (m^2)**

**2005 Aerial Photography**

---

**SCOPAC - IOW**

Change in Elevation (m) between March 2003 and August 2007

EROSION
ACCRETION
No Change

Change in Elevation:

-3 to -2.5
-2.5 to -2
-2 to -1.5
-1.5 to -1
-1 to -0.5
-0.5 to 0
0 to 0.5
0.5 to 1
1 to 1.5
1.5 to 2
2 to 2.5
2.5 to 3

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

NEW15 - Surface Sediment Distribution

2005 Aerial Photography

Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

NEW15 - Surface Sediment Distribution

SCOPAC - IOW
Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **Erosion**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

**No Change**

- Less than 5%
- 5 - 15%
- 16 - 30%
- > 30%

**MU boundary**

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

RYD4 - Mean High Water Position

RYD 5

MHW Position
1.36m OD

October 2007

Annual Report 2008

2005 Aerial Photography

SCPOAC - IOW
Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%
- **Erosion**

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

RYD4 - Mean High Water Position

± E

RYD5

Annual Report 2008

SCPOAC - IOW

MHW Position 1.36m OD

October 2007

0 100 200 m
Southeast Strategic Regional Coastal Monitoring Programme

RYD4 - Surface Sediment Distribution

Annual Report 2008

Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

©2008 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

Accretion
- > 30%
- 16 - 30%
- 5 - 15%

No Change
- Less than 5%
- 5 - 15%
- 16 - 30%
- > 30%

Erosion

MU boundary

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Change in Elevation (m) between January 2003 and February 2008

-0.5 - -0.25
-0.2 - -0.1
0.1 - 0.2
0.25 - 0.5
0.5 - 1
1 - 1.5
1.5 - 2
2 - 2.5
2.5 - 3
3 - 3.5

Model Extent

Southeast Strategic Regional Coastal Monitoring Programme

EROSION
ACCRETION
No Change


SCOPAC - IOW
MHW Position
1.36m OD

- August 2003
- March 2008

2005 Aerial Photography
Change in Elevation (m) between January 2003 and February 2008

- EROSION
- ACCRETION
- No Change

Model Extent

Southeast Strategic Regional Coastal Monitoring Programme


SCOPAC - IOW
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

Accretion
> 30 %
16 - 30 %
5 - 15 %
Less than 5 %

Erosion
5 - 15 %
16 - 30 %
> 30 %

No Change
Less than 5 %
5 - 15 %
16 - 30 %
> 30 %

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2005 Aerial Photography

RYD5 (2 of 3) - Beach Change

SCOPAC - IOW
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- Accretion
  - > 30 %
  - 16 - 30 %
  - 5 - 15 %
- No Change
  - Less than 5 %
  - 5 - 15 %
  - 16 - 30 %
- Erosion
  - > 30 %

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2006 Aerial Photography
MHW Position
1.36m OD

August 2003
March 2008

Mean High Water Position

RYD 5 (2 of 3) - Mean High Water Position

2008 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

RYD6 - Beach Change

SCOPAC - IOW

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- > 30%
- 16 - 30%
- 5 - 15%
- Less than 5%
- 5 - 15%
- 16 - 30%
- > 30%

No Change

Actual Annual Change in Cross-sectional Area (m^2)
RYD6 - Beach Change

Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

Accretion
- > 30%
- 16 - 30%
- 5 - 15%

No Change
- Less than 5%
- 5 - 15%
- 16 - 30%
- > 30%

Erosion

MU boundary

5g00212 (3)

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme


SCOPAC - IOW

Change in Elevation (m) between January 2003 and February 2008

- EROSION
- ACCRETION
- No Change

Model Extent

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

RYD6 - Mean High Water Position

MHW Position
1.36m OD

- June 2003
- March 2008

Annual Report 2008

SCPOAC - IOW
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- Accretion
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
- Erosion
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
- No Change
Change in Elevation (m) between August 2003 and February 2008

ACCRETION  No Change  EROSION

Model Extent
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

No Change

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

- **MU boundary**
- *2005 Aerial Photography*
- *2006 Aerial Photography*
Southeast Strategic Regional Coastal Monitoring Programme

RYD8 - Topographic Difference Model (2003 - 2008)

Annual Report 2008

Change in Elevation (m) between April 2003 and February 2008

Model Extent

ACCRETION No Change EROSION

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

RYD8 - Mean High Water Position

± E

RYD 5

Annual Report 2008

SCPOAC - IOW

MHW Position
1.36m OD

April 2003
March 2008

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **Erosion**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%
- **No Change**

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2005 Aerial Photography
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
- **Erosion**
  - > 30%

**MU boundary**

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

2005 Aerial Photography
Change in Elevation (m) between May 2003 and February 2008

<table>
<thead>
<tr>
<th>Change in Elevation</th>
<th>Model Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>2.5-3</td>
<td></td>
</tr>
<tr>
<td>2-2.5</td>
<td></td>
</tr>
<tr>
<td>1.5-2</td>
<td></td>
</tr>
<tr>
<td>1-1.5</td>
<td></td>
</tr>
<tr>
<td>0.5-1</td>
<td></td>
</tr>
<tr>
<td>0.25-0</td>
<td></td>
</tr>
<tr>
<td>-0.25</td>
<td></td>
</tr>
<tr>
<td>-0.5--0.2</td>
<td></td>
</tr>
<tr>
<td>-0.5</td>
<td></td>
</tr>
<tr>
<td>-1--0.5</td>
<td></td>
</tr>
<tr>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>-1.5--1</td>
<td></td>
</tr>
<tr>
<td>-1.5</td>
<td></td>
</tr>
<tr>
<td>-2--1.5</td>
<td></td>
</tr>
<tr>
<td>-2</td>
<td></td>
</tr>
<tr>
<td>-2.5--2</td>
<td></td>
</tr>
<tr>
<td>-2.5</td>
<td></td>
</tr>
<tr>
<td>&lt;=-3</td>
<td></td>
</tr>
</tbody>
</table>

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- > 30%
- 16 - 30%
- 5 - 15%
- Less than 5%
- 5 - 15%
- 16 - 30%
- > 30%

Accretion
Erosion
No Change

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2005 Aerial Photography

Southeast Strategic Regional Coastal Monitoring Programme

RYD9 (2 of 2) - Beach Change

SCOPAC - IOW
Change in Elevation (m) between May 2003 and February 2008

ACCRETION No Change EROSION

Model Extent

2005 Aerial Photography
RYD9 (2 of 2) - Mean High Water Position

MHW Position
1.36m OD

- March 2008
- April 2003
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%

- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%

- **Erosion**
  - > 30%

Actual Annual Change in Cross-sectional Area (m²)

MU Boundary

2005 Aerial Photography
MHW Position
1.36m OD

- April 2003
- February 2008
Southeast Strategic Regional Coastal Monitoring Programme  
Annual Report 2008

RYD12 (1 of 3) - Topographic Difference Model (2008 - 2004)

2005Aerial Photography

Change in Elevation (m) between May 2004 and February 2008

ACCRETION  No Change  EROSION

Model Extent
Mean High Water Position

1.41m OD

May 2004
February 2008

2005 Aerial Photography

MHW Position
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

**Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)**

<table>
<thead>
<tr>
<th>Type</th>
<th>&gt; 30%</th>
<th>16 - 30%</th>
<th>5 - 15%</th>
<th>Less than 5%</th>
<th>5 - 15%</th>
<th>16 - 30%</th>
<th>&gt; 30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accretion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erosion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Change</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2005 Aerial Photography
Change in Elevation (m) between May 2004 and February 2008

- EROSION
- ACCRETION
- No Change

Model Extent

2005 Aerial Photography
2005 Aerial Photography

MHW Position
1.41m OD

May 2004
February 2008
### Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

<table>
<thead>
<tr>
<th>Change</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accretion</td>
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</tr>
<tr>
<td>Erosion</td>
<td></td>
</tr>
<tr>
<td>&gt; 30 %</td>
<td></td>
</tr>
<tr>
<td>16 - 30 %</td>
<td></td>
</tr>
<tr>
<td>5 - 15 %</td>
<td></td>
</tr>
<tr>
<td>Less than 5 %</td>
<td></td>
</tr>
<tr>
<td>No Change</td>
<td></td>
</tr>
<tr>
<td>5 - 15 %</td>
<td></td>
</tr>
<tr>
<td>16 - 30 %</td>
<td></td>
</tr>
<tr>
<td>&gt; 30 %</td>
<td></td>
</tr>
</tbody>
</table>

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

- **Accretion**
- **Erosion**
- **No Change**
- **Less than 5 %**
- **5 - 15 %**
- **16 - 30 %**
- **> 30 %**

---

**2005 Aerial Photography**

---
Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- > 30%
- 16 - 30%
- 5 - 15%
- Less than 5%

Accretion:
- > 30%
- 16 - 30%
- 5 - 15%
- > 30%

Erosion:
- > 30%
- 16 - 30%
- 5 - 15%
- Less than 5%

No Change:
- > 30%
- 16 - 30%
- 5 - 15%
- Less than 5%

Actual Annual Change in Cross-sectional Area (m²)
Change in Elevation (m) between June 2003 and August 2007

- EROSION
- ACCRETION
- No Change

2005 Aerial Photography

Annual Report 2008

Change in Elevation (m) between January 2004 and May 2007

Erosion
Accretion
No Change

2005 Aerial Photography
SAN1 - Mean High Water Position

MHW Position 1.26m OD

2005 Aerial Photography

Jan 2004

May 2005
SAN2 - Mean High Water Position

SCOPAC - IOW

2005 Aerial Photography

MHW Position
1.26m OD

May 2007
Dec 2004

0 100 200 m
SAN2 - Surface Sediment Distribution

Sediment Type:
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

Annual Report 2008

2005 Aerial Photography

Change in Elevation (m) between August 2003 and July 2007

2005 Aerial Photgraphy
### Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrenation</td>
<td>&gt; 30 %</td>
</tr>
<tr>
<td></td>
<td>16 - 30 %</td>
</tr>
<tr>
<td></td>
<td>5 - 15 %</td>
</tr>
<tr>
<td>No Change</td>
<td>Less than 5 %</td>
</tr>
<tr>
<td></td>
<td>5 - 15 %</td>
</tr>
<tr>
<td></td>
<td>16 - 30 %</td>
</tr>
<tr>
<td></td>
<td>&gt; 30 %</td>
</tr>
</tbody>
</table>

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

- **MU boundary**
- **Accretion**
- **Erosion**
- **No Change**
- **Less than 5 %**
- **5 - 15 %**
- **16 - 30 %**
- **> 30 %**

The diagram shows the annual change in cross-sectional area with different colors representing different percentage ranges. The MU boundary is marked, and the actual annual change is indicated for specific areas.
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
- **Erosion**
  - > 30%

Actual Annual Change in Cross-sectional Area (m^2)

2005 Aerial Photography
Change in Elevation (m) between August 2003 and July 2008

- Erosion: -3 to -1
- Accretion: 0 to 2
- No Change: 2.5 to 3


Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008
SAN4 - Mean High Water Position

±

Annual Report 2008

SCOPAC - IOW

MHW Position
1.26m OD

2005 Aerial Photography

0 100 200 m

July 2008

December 2003
SAN4 - Surface Sediment Distribution

Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

2005 Aerial Photography
SAN5 - Beach Change

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

No Change

MU boundary

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
San5 - Beach Change

Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Annual % Change in Cross-sectional Area (Baseline 2003 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **Erosion**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

No Change

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
SAN5 - Mean High Water Position

SCOPAC - IOW
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

No Change

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography
Annual % Change in Cross-sectional Area (Baseline 2003 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%
- **Erosion**
  - 5 - 15%
  - 16 - 30%
  - > 30%

MU boundary

Actual Annual Change in Cross-sectional Area (m²)
Change in Elevation (m) between August 2003 and July 2008

ACCRETION  No Change  EROSION

±

SAN6 (1 of 2) - Topographic Difference Model (2008 - 2003)

SCOPAC - IOW
SAN6 (1 of 2) - Mean High Water Position

SCOPAC - IOW
Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- > 30 %
- 16 - 30 %
- 5 - 15 %
- Less than 5 %
- 5 - 15 %
- 16 - 30 %
- > 30 %

Accretion

No Change

Erosion

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2005 Aerial Photography
Change in Elevation (m) between August 2003 and July 2008

-3 -2.5 -2 -1.5 -1 -0.5 -0.25
0 0.25 0.5 1 1.5 2 2.5 3

ACCRETION No Change EROSION
SAN6 (2 of 2) - Mean High Water Position

Annual Report 2008

SCOPAC - IOW
Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

2005 Aerial Photography
### Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

<table>
<thead>
<tr>
<th>Change Type</th>
<th>Percentage Range</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accretion</td>
<td>&gt; 30%</td>
<td>Blue</td>
</tr>
<tr>
<td></td>
<td>16 - 30%</td>
<td>Blue</td>
</tr>
<tr>
<td></td>
<td>5 - 15%</td>
<td>Blue</td>
</tr>
<tr>
<td>No Change</td>
<td>Less than 5%</td>
<td>Gray</td>
</tr>
<tr>
<td></td>
<td>5 - 15%</td>
<td>Gray</td>
</tr>
<tr>
<td></td>
<td>16 - 30%</td>
<td>Gray</td>
</tr>
<tr>
<td></td>
<td>&gt; 30%</td>
<td>Gray</td>
</tr>
</tbody>
</table>

#### Example

**Annual Changing in Cross-sectional Area (m²)**

- **MU boundary**
- **5g00212 (3)**
- **5e00167 (13)**
- **5e00159 (7)**
- **5e00166 (9)**
- **5e00165 (-14)**
- **5e00161 (-8)**

---

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

- **5g00212 (3)**
- **5e00167 (9)**
- **5e00165 (-14)**
- **5e00171 (-1)**
- **5e00165 (-14)**
- **5e00161 (-8)**

---

**2005 Aerial Photography**

---

**SAN7 - Beach Change**

**SCOPAC - IOW**

---

**Southeast Strategic Regional Coastal Monitoring Programme**

**Annual Report 2008**
Annual % Change in Cross-sectional Area (Baseline 2003 to Spring 2008)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accretion</strong></td>
<td></td>
</tr>
<tr>
<td>&gt; 30 %</td>
<td></td>
</tr>
<tr>
<td>16 - 30 %</td>
<td></td>
</tr>
<tr>
<td>5 - 15 %</td>
<td></td>
</tr>
<tr>
<td>Less than 5 %</td>
<td></td>
</tr>
<tr>
<td><strong>Erosion</strong></td>
<td></td>
</tr>
<tr>
<td>&gt; 30 %</td>
<td></td>
</tr>
<tr>
<td>16 - 30 %</td>
<td></td>
</tr>
<tr>
<td>5 - 15 %</td>
<td></td>
</tr>
</tbody>
</table>

No Change

0%

Actual Annual Change in Cross-sectional Area ($m^2$)

2005 Aerial Photography
SAN7 - Mean High Water Position

SCOPAC - IOW

MHW Position
1.26m OD

July 2008
December 2003

2005 Aerial Photography
SAN8 - Beach Change

SCOPAC - IOW

Annual % Change in Cross-sectional Area (Spring 2007 to Spring 2008)

- Accretion
  - > 30 %
  - 16 - 30 %
  - 5 - 15 %
  - Less than 5 %

- Erosion
  - 5 - 15 %
  - 16 - 30 %
  - > 30 %

No Change
  - 5 - 15 %

Actual Annual Change in Cross-sectional Area (m²)

- MU boundary

2005 Aerial Photography
## Annual % Change in Cross-sectional Area (Baseline 2003 to Spring 2008)

<table>
<thead>
<tr>
<th>Acceleration</th>
<th>&gt; 30%</th>
<th>16 - 30%</th>
<th>5 - 15%</th>
<th>Less than 5%</th>
<th>5 - 15%</th>
<th>16 - 30%</th>
<th>&gt; 30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

- **MU boundary**
- **5g00212 (3)**
- **5e00178 (8)**
- **5e00183 (4)**
- **5e00187 (-32)**
- **5e00191 (-18)**

**2005 Aerial Photography**

Change in Elevation (m) between October 2003 and May 2007

-3 -3.5 -4 -4.5 -5 -5.5 -6 -6.5 -7 -7.5 -8 -8.5
-1 -1.5 -2 -2.5 -3 -3.5 -4 -4.5 -5 -5.5 -6 -6.5 -7 -7.5 -8 -8.5
0 0.25 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5 8

ACCRETION No Change EROSION

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

SAN8 - Mean High Water Position

SCOPAC - IOW

Annual Report 2008

MHW Position 1.26m OD

2005 Aerial Photography

- May 2007
- October 2003

SAN8 - Mean High Water Position
SAN8 - Surface Sediment Distribution

2005 Aerial Photography

Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction

0 100 200 m
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **No Change**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
- **Erosion**
  - > 30%

MU boundary

Actual Annual Change in Cross-sectional Area (m²)

2005 Aerial Photography

Annual Report 2008

Southeast Strategic Regional Coastal Monitoring Programme

SCOPAC - IOW
Change in Elevation (m) between November 2003 and February 2008

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme

Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- **Accretion**
  - > 30 %
  - 16 - 30 %
  - 5 - 15 %
- **No Change**
  - Less than 5 %
  - 5 - 15 %
  - 16 - 30 %
- **Erosion**
  - > 30 %

MU boundary

Actual Annual Change in Cross-sectional Area ($m^2$)

2005 Aerial Photography
Southeast Strategic Regional Coastal Monitoring Programme  

Annual Report 2008

SCOPAC - IOW


Change in Elevation (m) between November 2003 and February 2008

---

0.5 - 1
1 - 1.5
1.5 - 2
2 - 2.5
2.5 - 3
3 - 3.5

EROSION
ACCRETION
No Change
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

VEN2 (2 of 2) - Mean High Water Position

2005 Aerial Photography

MHW Position 1.1m OD

February 2008
November 2007
Annual % Change in Cross-sectional Area (Baseline 2006 to Spring 2008)

- **Accretion**
  - > 30%
  - 16 - 30%
  - 5 - 15%
- **Erosion**
  - Less than 5%
  - 5 - 15%
  - 16 - 30%
  - > 30%

**No Change**

- Less than 5%
- 5 - 15%
- 16 - 30%
- > 30%

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

MU boundary

2005 Aerial Photography
Change in Elevation (m) between September 2003 and August 2007

0 100 200 m

ACCRETION No Change EROSION

Model Extent

FRE2 (1 of 2) - Topographic Difference Model (2007 - 2003)

SCOPAC - IOW
Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

FRE2 (1 of 2) - Mean High Water Position

SCOPAC - IOW

MHW Position
0.62m OD

November 2007
November 2003

0 100 200 m

November 2007
November 2003

2005 Aerial Photography
Change in Elevation (m) between September 2003 and August 2007

ACCUMULATION No Change EROSION

Model Extent

Southeast Strategic Regional Coastal Monitoring Programme

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SCOPAC - IOW
MHW Position
0.62m OD

November 2007

November 2003

2005 Aerial Photography

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Sediment Type
- Gravel
- Gravel & Sand
- Sand
- Boulders
- Dune
- Grass
- Gravel & Mud
- Mud
- Mud & Sand
- Rock
- Saltmarsh
- Sea Defence
- Shell
- Water body
- Mixture
- Obstruction
Annual % Change in Cross-sectional Area (Baseline 2004 to Spring 2008)

- Accretion:
  - > 30%
  - 16 - 30%
  - 5 - 15%
  - Less than 5%

- No Change:
  - 5 - 15%
  - 16 - 30%
  - > 30%

- Erosion:
  - > 30%

Actual Annual Change in Cross-sectional Area (m²)

MU boundary

2005 Aerial Photography

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Change in Elevation (m) between March 2003 and July 2007

0 100 200 m

ACCRETION No Change EROSION

2005 Aerial Photography
Change in Elevation (m) between May 2004 and Jun 2006

- EROSION
- ACCRETION
- No Change

Model Extent

0 210 420 m
Change in Elevation (m) between May 2004 and Jun 2006

- EROSION
- ACCRETION
- No Change

Model Extent

0 200 400 m
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Change in Elevation (m) between May 2004 and Jun 2006

ACCRETION No Change EROSION

Model Extent
Southeast Strategic Regional Coastal Monitoring Programme

NEW4 - Hydrographic Difference Model (2006 - 2004)

Change in Elevation (m) between Apr 2004 and Jun 2006

Model Extent

ACCRETION No Change EROSION

0 100 200 m
Southeast Strategic Regional Coastal Monitoring Programme


Change in Elevation (m) between Apr 2004 and Jun 2006

ACCReTION No Change EROSION

Model Extent
Southeast Strategic Regional Coastal Monitoring Programme


Change in Elevation (m) between Apr 2004 and Jun 2006

Model Extent

ACCRETION No Change EROSION

±

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NEW8 - Difference Model (2006 - 2004)

±

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Change in Elevation (m) between July 2004 and September 2006

Model Extent

EROSION

ACCRETION No Change
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SCOPAC - IOW

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Model Extent

Change in Elevation (m) between July 2004 and September 2006

Erosion

Accretion

No Change

0.25 - 0.5
-0.25
-0.5 - -0.25
-1
-1.5 - -1
-2 - -1.5
-2.5 - -2
-3 - -2.5

>= 3
2.5 - 3
2 - 2.5
1.5 - 2
1 - 1.5
0.5 - 1
0.25 - 0.5
0 - 0.25
-0.25
-0.5 - 0
-1
-1.5 - 0
-2 - 1.5
-2.5 - 2
-3 - 2.5

0 100 200 m
Southeast Strategic Regional Coastal Monitoring Programme


Change in Elevation (m) between Mar 2004 and Jun 2006

ACCRETION No Change EROSION

Model Extent

0 100 200 m

Southeast Strategic Regional Coastal Monitoring Programme

Change in Elevation (m) between Mar 2004 and Jun 2006

ACCRETION No Change EROSION

Model Extent

0 100 200 m

Change in Elevation (m) between Mar 2004 and Jun 2006

<= -3
-3 - -2.5
-2.5 - -2
-2 - -1.5
-1.5 - -1
-1 - -0.5
-0.5 - -0.25
-0.25 - 0.25
0.25 - 0.5
0.5 - 1
1 - 1.5
1.5 - 2
2 - 2.5
2.5 - 3
3 - 3.5
4 - 5

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Change in Elevation (m) between March 2004 and June 2006

-3, -2.5, -2, -1.5, -1, -0.5, 0, 0.25, 0.5, 1, 1.5, 2, 2.5, 3

ACCRETION  No Change  EROSION

Model Extent
Southeast Strategic Regional Coastal Monitoring Programme

RYD4 - Hydrographic Difference Model (2006 - 2004)

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Change in Elevation (m) between March 2004 and June 2006

Model Extent

Accretion No Change Erosion

0 190 380 m
Southeast Strategic Regional Coastal Monitoring Programme


Change in Elevation (m) between Jan 2004 and Jun 2006

Model Extent

SCOPAC - IOW
Southeast Strategic Regional Coastal Monitoring Programme

Change in Elevation (m) between Jan 2004 and Jun 2006

- EROSION
- ACCRETION
- No Change

Model Extent

Southeast Strategic Regional Coastal Monitoring Programme


Model Extent

Change in Elevation (m) between Jan 2004 and Jun 2006

ACCRETION No Change EROSION

0.5 1 1.5 2 2.5 3

0.25 0.5 1 1.5

-0.25 -0.5 -1 -1.5 -2 -2.5

-1 -1.5 -2 -2.5 -3

0 100 200 m
Southeast Strategic Regional Coastal Monitoring Programme

Model Extent

Change in Elevation (m) between Jan 2004 and Jun 2006

Accretion, No Change, Erosion

Southeast Strategic Regional Coastal Monitoring Programme


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Change in Elevation (m) between Jan 2004 and May 2006

Model Extent

ACCRETION No Change EROSION

± E

0 100 200 m

SESC - IOW

Change in Elevation (m) between Jan 2004 and May 2006

Model Extent

ACCRETION No Change EROSION

± E

0 100 200 m

SESC - IOW
Change in Elevation (m) between Jan 2004 and Jun 2006

Model Extent

ACCRETION No Change EROSION

Southeast Strategic Regional Coastal Monitoring Programme

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SCOPAC - IOW

Change in Elevation (m) between Feb 2004 and May 2006

ACCRETION No Change EROSION

Model Extent

0 100 200 m

Southeast Strategic Regional Coastal Monitoring Programme

Annual Report 2008

Model Extent

Change in Elevation (m) between Feb 2004 and May 2006

ACCRETION No Change EROSION

Model Extent

0 100 200 m

Southeast Strategic Regional Coastal Monitoring Programme

change in elevation (m) between Feb 2004 and May 2006

ACCRETION  No Change  EROSION

Model Extent

0 100 200 m

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Model Extent

Change in Elevation (m) between Feb 2004 and May 2006

ACCRETION No Change EROSION

Model Extent
Model Extent

Change in Elevation (m) between Feb 2004 and May 2006

ACCRETION  No Change  EROSION

0.25-0.5  -0.25  -0.5--0.25  -1--0.25  -1.5--1  -2--1.5  -2.5--2  -3--2.5  <=-3
Change in Elevation (m) between Feb 2004 and May 2006

Accretion No Change Erosion

Model Extent
Change in Elevation (m) between Feb 2004 and Jun 2006

ACCRETION No Change EROSION

Model Extent

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

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

where \(\text{Vol}_1\) = most recent DTM model volume and \(\text{Vol}_2\) = earlier DTM model volume. Therefore a net change of –19730m\(^3\) represents erosion since the earlier survey.