Coastal Change in Poole and Christchurch Bays

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Channel Coastal Observatory

www.Channelcoast.org
Please Note

This presentation differs from that given at the Poole & Christchurch Bays Shoreline Management Plan workshops (February 2009).

Slide No's 44-57 have been removed due to copyright issues

www.twobays.net
Coastal processes

- Factors affecting change
  - Geology
  - Geomorphology
  - Waves
  - Tides
  - Currents
  - Management

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Storm events

Surges
Atlantic depressions
Hotspots

- December 1989
- December 1999
- March 2008

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Land sliding and cliff stability

- Ground water
- Geology
- Sea erosion
Measuring changes
Saltmarsh change

Saltmarsh (38% of 1947 extent) between 1947-1993, Reedbed increased by (63% of 1947 extent)

Borr (2005), DLRC (2005)
Actual Change in Cross-sectional Area (m²)

Actual Beach Change Summary - 2007 to 2008

Southeast Strategic Regional Coastal Monitoring Programme
Annual Report 2008

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Measuring coastal change
Is it getting more stormy?
How do we know?

Milford-on-Sea

Significant wave height (m)

Year

1:100 yr event based on data from 1975-1989
Aging structures

“If you can see this line call an engineer”

Life structures 50 years
Many structures built in 50s - 60s
Recent changes

MHW Position
0.4m OD
- Sep 2003
- Oct 2007

Recharged
Nov-Dec 2005

(2005 Aerial Photography)

- Mean High Water Position

SCOPAC - Poole Bay

Southeast Strategic Regional Coastal Monitoring Programme
Annual Report 2008
Change in Elevation (m) between March 2003 and Jan 2008

Baseline Data:
March 2003 - Topographic Survey
Jan 2008 - LiDar

Model Extent

STU2 - Topographic Difference Model (2003 - 2008)
Predicting change

- Models
- Field measurements
- Extrapolation of trends
- Risks over the next 100 years

- High level of uncertainty
  - Good quality data
  - Long term data
What if there are no flood defences?
- When?
- Where?
- How often?
- What if sea levels rise?
- What if it becomes more stormy?

Flooding

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Use of LIDAR to identify flood risk areas - a simplified example of artificial scenarios!
Data provided courtesy of the Environment Agency, Hampshire and West Sussex County Councils

Properties in Tidal Floodplain
- Christchurch District Council
- Flood Zone 3 (1:200 yr) 2008
- Ward's Affected By Tidal Flooding

<table>
<thead>
<tr>
<th>Local Authority</th>
<th>Number of Properties in Tidal Floodplain</th>
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<tbody>
<tr>
<td>Christchurch District Council</td>
<td>545</td>
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Hurst Spit to Durlston Head Shoreline Management Plan

Data provided courtesy of the Environment Agency, Hampshire and West Sussex County Councils

Properties in Tidal Floodplain
- Purbeck District Council
- Flood Zone 3 (1:200 year) 2008
- Ward's Affected By Tidal Flooding

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<th>Local Authority</th>
<th>Number of Properties in Tidal Floodplain</th>
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<tr>
<td>Purbeck District Council</td>
<td>52</td>
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Purbeck District Council

Flood Zone 3 (1:200 yr) 2008

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