

Channel Coast News

Issue 22 - May 2005

The newsletter for the Southeast Strategic Regional Coastal Monitoring Programme www.channelcoast.org

Regional News

South East Coastal Group

Beach profile survey data up to and including spring 2004 have been loaded onto the project web site and are available for downloading. Spring profiles for MU1 and 2 have been verified and loaded into SANDS. The updated database will be released once the latest version of SANDS has been received. Archive files for the website are being processed and will be uploaded shortly.

All bathymetric data has been checked and is now available for release. Work on extracting the bathymetric profiles will commence after discussion at the Data Management meeting on 10 May 2005.

South Downs Coastal Group

The aerial survey covering the frontage between Selsey Bill and Shoreham was flown on 22 April. With good weather and some favourable tides forecast for the week commencing 2 May it is hoped that the remaining frontage can be surveyed then. Other options for completing this survey are being investigated.

After the last SDCG meeting on 18 April, a feedback meeting was held to discuss the Annual Report and Phase 2 of the project. There were some good discussions and generally the meeting proved very positive. A summary of actions/outcomes will be distributed to the Project Team and Project Partners.

Environment Agency (Southern Region)

A recent welcome spell of good weather coupled with favourable tidal conditions has enabled Kampsax to commence their flights for 2005/06. On this occasion data was captured within SDCG (1:3000) between Shoreham-by-Sea and Selsey Bill.

The QA-ing of the data collected under the 2004/05 LiDAR programme is progressing well and work on planning next year's programme is expected to begin shortly. The aerial photography interpretation work for coastal BAP habitat data is being undertaken by Kent County Council. The majority of Southampton Water, Langstone and Chichester Harbours are now complete.

SCOPAC

SCOPAC surveyors have been in the news recently: on a recent survey profile survey at Bournemouth, our

photogenic surveyors were accompanied by local artist Helena Hines. Meanwhile, the Daily Echo recently featured Poole Harbour Commissioners' hydrographic surveyor, Steve Pearce, with this evocative shot of Steve en route to a survey in Poole Bay.



Photo courtesy of Bournemouth Daily Echo

Channel Coastal Observatory

The website Map Viewer now displays coverage of aerial photographs and the survey control points. New zoom and map pan tools have been added. Comments welcome.

What's New?

From 1 May, Southampton Oceanography Centre is to be known as the National Oceanography Centre, Southampton. Please note the new email addresses below. The channelcoast.org website is unaffected.

Contacts

If you have any queries about the Strategic Regional Coastal Monitoring Programme, or would like a personal copy of this newsletter by email, please contact your area representative:

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Post-storm surveys Part III - Beach lowering in front of structures

A large proportion of the seawalls in the southeast depend upon mobile shingle beaches to protect them from wave action and from undermining. With the change in emphasis away from the prevention of flooding and erosion towards management of flood and erosion risks, understanding how seawalls and beaches interact during storms is very important. Without this understanding it is difficult to produce realistic estimates of defence failure probabilities and how they are likely to change over time.



Reculver 1996

Seawall and beach defence systems can fail by a variety of methods, the likelihood of which depends upon a wide range of factors including:

- Design detail of the seawall including wall top and toe levels
- Condition/age of seawall and other defence components such as groynes
- Size and composition of the protective beach
- Loading during storms (from combined still water levels and wave conditions)

The likelihood of failure will also change over time due to beach erosion/accretion, sea level rise and change in the condition assessment.

Defence failure can be divided into two categories; structural failure of the seawall and non-structural failure. Non-structural failure occurs when there is damage caused to assets behind the seawall without there being any physical damage to the seawall itself. In the case of structural failure, the

seawall is damaged such that it no longer forms an effective barrier to the inflow of floodwater and a breach in the defence forms.

For a typical seawall and beach system the modes of structural failure include:

- wave overtopping (leading to erosion of the seawall crest or backslope)
- wave impact forces on seawalls (leading to sliding or overturning)
- undermining of seawall (either during storms or by a general reduction in beach levels over time)
- general deterioration of the defence over time

It is possible to assess the different failure modes individually and then (taking care of dependency between the different modes) combine the individual failure probabilities to produce a single failure probability. The calculations can be repeated for future scenarios taking account of sea level rise and beach erosion/accretion.

Wave overtopping is the most likely form of non-structural failure. Data from the project can readily be used to estimate overtopping rates and how they are likely to change in the future.



Overtopping at Sandgate 2000

In combination with coastal defence strategy studies, it will be possible to set lower limits on the amount of beach required to limit the risk of coastal defence failures to acceptable levels. Moreover, the Strategic Regional Coastal Monitoring Programme will be in a position to monitor actual beach volumes at specific locations against the requirements. A more sophisticated system could also be developed which provides a direct estimate of flood and erosion risks following each survey and through establish trends in beach quantities, provide early warnings as to when remedial actions are required.