

PAPER B

Purpose : For Discussion

Committee : **SCOPAC**

Date : **March 2010**

Title : **RESEARCH PROGRAMME**

REPORT OF THE CHAIRPERSON OF THE SCOPAC RESEARCH SUB-GROUP

1 CURRENT RESEARCH PROGRAMMES

1.1 ACCESS' (ADAPTING TO CLIMATE CHANGE ALONG ENGLAND'S SOUTHERN SHORELINES')

Following from the European Union LIFE RESPONSE (Responding to the risks of climate change) project in 2006, the Chairman of the SCOPAC Officers' Working Group (Dr Robin McInnes), who then worked for the Isle of Wight Council, presented a report to SCOPAC on the need to identify more effectively 'Assets at risk along the SCOPAC coastline'. The need for this research was supported by SCOPAC and the Chairman prepared a research project called ACCESS.

Recent assessments of assets at risk from erosion and instability along the SCOPAC and South Downs coastlines together with the research into the impacts of climate change, have recognised the need for more refined assessments to be made of methodologies currently being used to ascertain coastal erosion risk, the values of assets at risk and opportunities for adaptation to the impacts of climate change, looking ahead over the next one hundred years. SCOPAC believes that with this additional information, the Operating Authorities and related interests will be significantly better informed in terms of planning and managing coastal defence needs for the future.

Coastal and Geotechnical Services, Halcrow and the Channel Coastal Observatory (CCO) are undertaking the work for this project, for which the first phase has now commenced. Using the second generation Shoreline Management Plan outputs, the CCO identified "hotspots" where more than 40 properties are at risk from erosion and/or flooding over the next 100 years. Additional areas with minimal assets at risk from the "Adapting to Changing Coastlines and Rivers," Making Space for Water Strand SD2 paper (Jane Taussik *et al.* 2006) were also added to the list. In addition, the Southern Coastal Group officers commented on the hotspots and were given the opportunity to add or change the outputs.

All "hotspots" were categorised into a geomorphology type such as, cliffs, landslides, sand dunes, lowland, saltmarshes and barrier beaches and were assigned a hazard

type such as, instability, erosion, flooding and a combination of erosion followed by flooding of the hinterland (i.e. Worthing, West Sussex or Emsworth, Hampshire). With a focus on sites under threat from instability, erosion and erosion followed by flooding, case studies of each geomorphology type were selected from the list of hotspots, ensuring a variety of examples were taken from across the SCOPAC region. Each case study will detail historical and predicted future geomorphological evolution, critique Shoreline Management Plan and national methods of erosion prediction and investigate the data used for assessing assets at risk. Halcrow and the CCO will be responsible for detailing the text for these case studies. Coastal and Geotechnical services are drafting the main project structure and text for the report. The next project steering group meeting will be on the 16th March 2010.

Recommendation: For information

1.2 SEDIMENT TRACER STUDIES EAST SOLENT

A proposal by Havant Borough Council was accepted by the Southern Coastal Group and SCOPAC to examine the use of a new shingle tracer study technique. PIT tags used for animal identification are currently being embedded into the native flint / chert pebbles and will be used to confirm sediment transport pathways around Hayling and Portsea Island. £1500 has been provided by SCOPAC to assist with the preparation costs of the tracer pebbles. A more comprehensive proposal for further work may be prepared at a later stage following the initial trials.

Clive Moon reports.....

Equipment development:

Antennas are used to re-locate the tracer pebbles. These are being re-designed and upgraded to detect tracers to a depth range of up to 1m (Figure 1).



Figure 1: First prototype antennas.

Phase One Beach Trial - Langstone Entrance Channel:

An initial trial batch of 500 pebbles is being prepared for deployment early Summer 2010 on the beaches adjacent to Langstone Harbour entrance.

The study is being carried out to supplement the South West Hayling Island Beach Management Study. There is uncertainty in the understanding of the flow of coarse beach material around Gunner Point & Fort Cumberland as the coast changes from swash to drift aligned. A better understanding is required of the direction of transport for 'pulses' of material which move gradually around the coastline. On the Portsmouth side of the channel there is uncertainty over the present location of a drift divide adjacent to Fort Cumberland, and whether transport still occurs past the outfall constructed across the active beach. The study aims to identify the rate and direction of coarse sediment transport using the tracer pebbles.

Further testing / trials:

Approximately 2,500 tracer pebbles are currently available for use on the Portsmouth and Havant coastline. Once phase one has started to return data, and the methodologies for detection are fine-tuned, further deployments are planned for Eastoke and Southsea. At Eastoke the tracers will be used in conjunction with volumetric analysis to improve the understanding of losses from the nourished frontage. At Southsea Memorial the tracers would be used to confirm the path taken by material placed on the upper beach to counter coastal erosion. Interest has also been expressed for studies looking at the nourished material placed at Lee-on-the-Solent and the storm beach at East Head / West Wittering.

Interestingly, Exeter University (Larissa Naylor) have ordered a similar system for tracking cobbles and boulders in Cornwall.

Recommendation: For information

1.3 MAINTENANCE OF COASTAL STRUCTURES - PHASE 1: TIMBER GROYNES

This project is due to commence and as a preliminary start, a SCOPAC workshop has been organised for the 24th March to be held at the National Oceanography Centre. The workshop will focus on "the nuts and bolts of timber groynes" and is very much aimed at sharing best practice "on the ground" knowledge between experienced coastal engineers and new engineers or scientists to assist operating authorities with basic skills development.

Recommendation: For information

1.4 WEBSITE UPDATE

At the recent SCOPAC Research sub-group meeting held on the 23rd February, updating the SCOPAC website and the Southern Coastal Group website was discussed. It was felt that even though the websites are basic, they serve the needs of the two groups and with a few minor changes could be improved and be made

more up to date and informative. Website updates will be discussed in more detail at the next Research sub-group meeting for which the Isle of Wight website maintainer will be invited to attend.

Recommendation: For information

2 NEW RESEARCH

The following programme of work was extracted from the Southern Coastal Group Business Plan (2009) as a reminder of the priorities for research approved by SCOPAC at its meeting on 15th February 2008, Item 28 (ii), following completion of the 'Research Review'. Completion of these projects will be dependent on future funding availability.

- Adapting to Coastal Change Along England's Southern Shorelines (ACCESS): Channel Coast Observatory £26,000, Halcrow £17,500, Coastal and Geotechnical Services £14,000, Management/Printing £11,100, Contingencies £3,000. 2008/09-2009/10. **Ongoing**
- Extreme wave conditions study: Professor A Bradbury £10,000 (2008/09), £8,000 (2009/10). **Ongoing**
- Contribution to CIRIA Beach management manual £10,000 (2008/09). **Ongoing**
- Maintenance of coastal structures Phase 1 Timber groynes – Professor A Bradbury/CCO £18,000 (2009/10-2010/11). **Due to commence**
- Contributions to minor studies: £4,000 unallocated – budget delegated to Southern Coastal Group (2009/10). **Ongoing**
- Evolution of coastal sediment sinks: Southampton University/CCO - £25,000 (2010/11).
- Validation of new Met office wave data: CCO/Southampton University £15,000 (2010/11), £10,000 (2011/12).
- Climate change local scenarios study: External consultants £35,000(2011/12), £35,000 (2012/13).
- Saltmarsh evolution study: CCO - £15,000 (2012/13), £10,000 (2013/14).
- Design guidance for mixed beaches - £30,000 (2013/14), £30,000 (2014/15).

Recommendation: For information

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