PAPER B

Purpose : For Discussion

Committee : **SCOPAC**

Date : **September 2010**

Title : **RESEARCH PROGRAMME**

REPORT OF THE CHAIRPERSON OF THE SCOPAC RESEARCH SUB-GROUP

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1 CURRENT RESEARCH PROGRAMMES

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

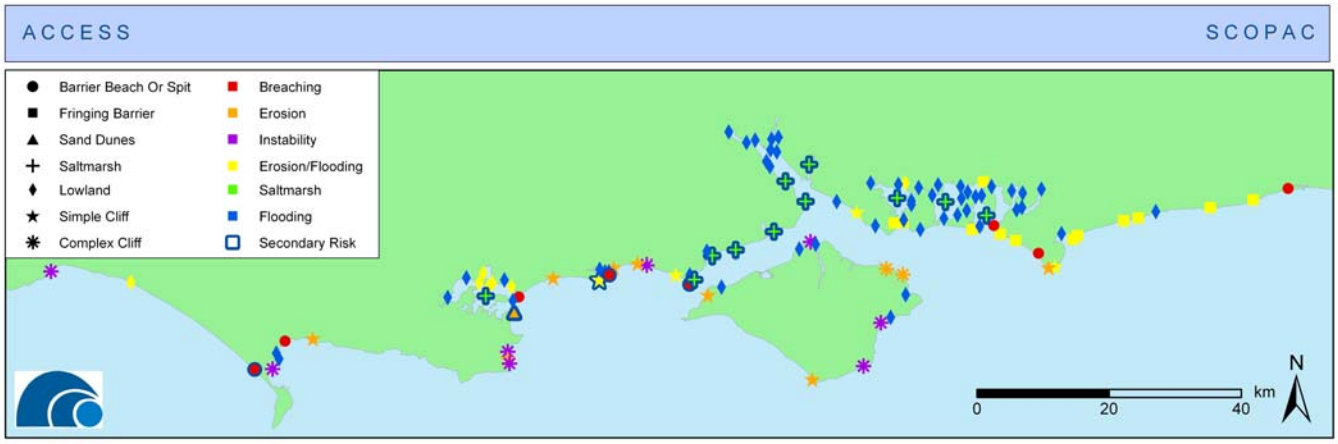
Following from the European Union LIFE RESPONSE (Responding to the risks of climate change) project in 2006, the Chairman of the SCOPAC Officers' Working Group (Dr Robin McInnes), who then worked for the Isle of Wight Council, presented a report to SCOPAC on the need to identify more effectively 'Assets 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. These hotpsots were cross checked with crunch sites from the "Adapting to Changing Coastlines and Rivers," Making Space for Water Strand SD2 paper (Jane Taussik *et al.* 2006). In addition, the Southern Coastal Group officers checked and commented on the outputs.

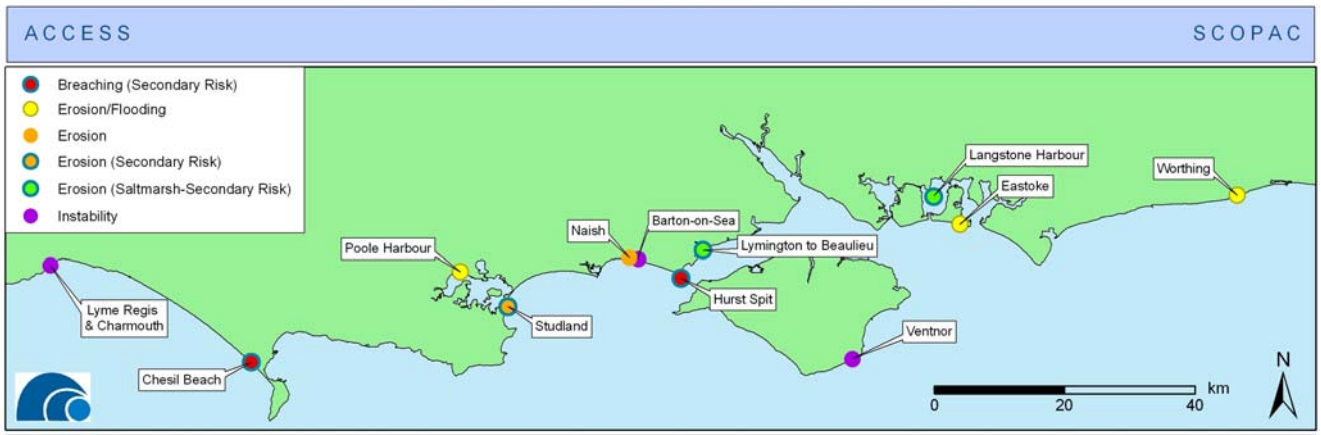
All "hotspots" were categorised into a geomorphology type such as, cliffs, landslides, sand dunes, lowland, saltmarshes and barrier beaches and were assigned a hazard type such as, instability, erosion, flooding and a combination of erosion followed by

flooding of the hinterland (i.e. Worthing, West Sussex or Emsworth, Hampshire) (see Figure 1).



Hotspot geomorphology and hazard Figure 1

With a focus on sites under threat from instability, erosion and erosion followed by flooding, case studies for each geomorphology type were selected from the list of hotspots, ensuring a variety of examples were taken from across the SCOPAC region. These include the following identified in Figure 2:



Case Study Sites Figure 2

Each case study will detail historical and predicted future geomorphological evolution, outline coastal monitoring, management and adaptation of the shoreline and identify lessons learnt. A critique of Shoreline Management Plan erosion methods and national methods of erosion prediction will also be undertaken for a selection of sites, as will data used for assessing assets at risk.

Halcrow and the CCO are detailing the text for the case studies and undertaking the erosion method comparisons. Coastal and Geotechnical services are drafting the main project structure and text for the report.

The Southern Coastal Group officers agreed at the last meeting in July that publication of the ACCESS project will be delayed until the Shoreline Management Plans and the National Coastal Erosion Risk Mapping Programme are in the public

domain. The ACCESS project will then provide recommendations on methods and data used to predict coastal erosion.

The next steps of the project include completing all case studies, finalizing the analysis of the Shoreline Management Plan and national methods of erosion prediction and investigating the implications of these differing erosion methods when setting policy. The methods and data used to predict coastal erosion over the next 100 years are key when setting Shoreline Management Plan or Coastal Defence Strategy Study policies given that the greater the erosion risk to property, the more likely the frontage will obtain the benefit-cost ratio required to achieve a Hold The Line policy, thereby potentially attracting funding for future works. Still, if methods are under or indeed over-predicting erosion then there could be significant implications for future policy setting and central government funding distribution.

The Southern Coastal Group discussed the launch event for the ACCESS project and agreed that a workshop involving Councillors, planners, and consultants would be beneficial in attempting to engage all relevant parties.

The next project steering group meeting will be held in November 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…..

Phase One Beach Trial:

At the time of writing, an initial trial of 300 pebbles were to be deployed on the nourished beach frontage at Eastoke, over a two to three week period. Provided the trial runs smoothly, 500 pebbles are planned to be deployed later in the year at Gunner Point, Langstone Harbour entrance.

Figure 3: Hayling Island

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.

Recommendation: For information

2 NEW RESEARCH

The following programme of approved 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. 2008/09-2009/10-2010/2011-2011/2012. ***Ongoing***

- Extreme wave conditions study: Professor A Bradbury £10,000 (2008/09), £8,000 (2009/10). ***Near completion***

- Contribution to CIRIA Beach management manual £10,000 (2008/09). ***Completed***

- Maintenance of coastal structures Phase 1 Timber groynes – Professor A Bradbury/CCO £2,500 (2010/11) and £15,500 (2011/2012). ***Workshop undertaken to start project***

- Contributions to minor studies: £1,500 Sediment Tracer Study (2010/2011) ***Ongoing.*** £2,500 unallocated for 2010/2011 – budget delegated to Southern Coastal Group

- Evolution of coastal sediment sinks: Southampton University/CCO - £25,000 (2011/12).

- Validation of new Met office wave data: CCO/Southampton University £15,000 (2012/13), £10,000 (2013/14).

- 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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