

## Editorial



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For some while, we have been trying to encourage articles that draw on papers from the Institution of Civil Engineers (ICE) archives. The idea is to draw attention to what were often exceptional publications, to present them in a contemporary context and consider their continuing relevance. The first such article in *Maritime Engineering* draws on a paper that was the basis of the Chairman's address to the Northern Counties Association of the ICE in 1958 (Porter, 1958). The original paper presents some quite detailed information on the building of the Tyne piers on the north-east coast of the UK. In his update, Cooper (2012b) briefly summarises the key points and highlights how this paper is now proving invaluable to those charged with maintaining these structures. This highlights both the value of information held in the archive to the present generation of engineers and also the need to encourage those same practitioners to publish their design and construction experiences, so that this information is discoverable by future generations!

Our last issue focussed on the issue of coastal adaptation in the UK (Cooper, 2012a), with papers that provided an overview of the technologies available (Linham and Nicholls, 2012), the implications for coastal communities (Moore, 2012) and a number of examples based on case studies in the UK (Cooper and Dolan, 2012; Frew, 2012; Pontee and Parsons, 2012). In this issue, further consideration is given to the issue of adaptation but this time focussing on the particular problems and experiences in Barbados. The paper by Mycoo and Chadwick (2012) presents the findings of some research undertaken on the island to consider the options and constraints for adaptation, with particular reference to the likely impacts of climate change. The vulnerability of settlements, infrastructure and economically important beaches means that hard engineering is often the preferred solution on eroding shores. The importance of the beaches means that beach nourishment also makes an important contribution. Not surprisingly, with limited space on the island, retreat and relocation are both controversial and unpopular. The study concludes that piecemeal protection has been ineffective and is likely to be increasingly so, as sea level rises and beaches are squeezed wherever the high water line is unable to retreat.

After two papers that highlight a range of practical engineering and management issues, the third paper is more

theoretical and presents a model of submarine turbidity currents (Hu *et al.*, 2012). The model couples the action of the turbidity current with an erodible bed. When applied to the problem of turbidity currents near a submarine canyon–fan transition and submarine fan itself, the coupled model demonstrates the importance of the feedback between the turbidity flow and evolving bed. This is a complex model which is carefully set out in the paper. The authors have tested the model against flume experiments and also explore the sensitivity of the model to boundary conditions and model parameters. This allows them to use the model, in an informed way, to shed light on the formation of submarine canyon–fan transitions (characterised by abrupt decreases in bed slope) and submarine channel–levee morphology (where levees rise above the bed forming a channel in between). Importantly the authors note the qualitative nature of the findings and the need for careful calibration for use in practical applications. However, this does not detract from the important insights that the model provides into the formation of these features and the significance of the feedback between the turbidity flow and evolving morphology, both of which should inform engineering considerations when working in areas prone to such turbidity currents.

The final paper in this issue looks at an important data source for coastal engineers – historical maps. Although the paper focusses on tidelines for high and low water extracted from Ordnance Survey maps in the UK, the methods explored have wide applicability. The errors involved in establishing the positions of tidelines are divided into source uncertainty, interpretation uncertainty and natural shoreline variability. Various methods for analysing these uncertainties and including them in historical trends analysis are explained with the aid of a number of examples. Sutherland (2012) goes on to explore an emerging issue that results from the inexorable move to a digital age. Traditionally, the maps retained the date of survey, so enabling their use in this type of historical trends analysis. New technology means that maps are now being updated on an almost continuous basis and timing information is no longer being retained. The response is to look at other sources of information, such as light detection and ranging (LiDAR), but this carries with it the problem of a discontinuity between one type of data and another. This is not dissimilar to the problem of using bathymetry for

historical analysis, where the change from lead line to echo sounder technology in the early 1930s led to a notable change in the depths recorded on the charts (Townend and Whitehead, 2003) and the change from echo sounder to swath bathymetry that is now taking place will present similar inconsistencies that have to be factored into any form of historical reconstruction or hindcasting study.

Finally, Alan Brampton provides a review of a recent publication on beach management. There are several existing guides on beach management that have a predominantly engineering focus. This book does not seek to duplicate these but rather focusses on the socio-economic values of beaches, especially their recreational and aesthetic attributes. As such the book provides a broader perspective along with a number of interesting case studies.

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