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# Editorial

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The briefing article (Gouldby, 2012) and the first two papers in this issue (Chen and Alani, 2012; Cihan, 2012) relate to various aspects of risk assessment. This reflects the progressive move to risk-based techniques in both design and planning over the past few decades. Such techniques, in the form of reliability analysis, saw significant advance for the design of offshore platforms to extract North Sea oil and gas in the 1970s and 1980s (Thoft-Christensen and Baker, 1982). At about this time, exploratory applications were also under way for the design of coastal defences, notably in the US and Netherlands (CUR/TAW, 1990; Dover and Bea, 1980). During the 1990s and early 2000s the focus shifted from individual structures to applying risk-based assessment at a large scale to whole systems (e.g. entire catchments, or coastal cells). This was enabled by advances in computing capability, in conjunction with the development of large databases containing details of defences, land levels, property and so on, alongside long-term records of the key drivers such as sea level, storm surge and waves. Such systematic analysis of sea defence reliability and flood risk is now becoming common practice and being applied in vulnerable locations around the world (Pender and Faulkner, 2010; Reeve, 2010).

The ability to undertake risk analysis at a regional, or national, scale can be particularly valuable for both planning and policy formulation. A good example of the former is the TE2100 project, where regional analysis of flood risk in the Thames helped identify the most vulnerable areas and hence prioritise investment needs (Lavery and Donovan, 2005). The value of the latter has underpinned the formulation of strategic investment planning for flood defences in the UK (EA, 2009) and more recently has provided a robust foundation for an important aspect of the UK's first climate change risk assessment (CCRA) (Defra, 2012). The CCRA also starts to provide a much broader context, considering socio-economic change alongside climate change and trying to relate the biophysical impacts caused by climate change (notably sea level rise, flooding and drought) to impacts on health, transport, biodiversity and business, as well as the direct impacts on domestic and industrial properties. The more detailed advances presented in this issue all contribute to developing a richer understanding of the complex risk landscape that needs to be assessed to inform policy and enable robust decision making.

A while ago we announced that we were seeking to start two new initiatives in *Maritime Engineering*. One was to have short briefing articles about historical papers that retain a contemporary relevance or interest. We hope that the first of these will appear shortly. The second initiative was to include a briefing article that links to a paper we are publishing, to provide a broader context and some explanation of the article. The aim is to provide an introduction for non-specialists and, for very theoretical papers, to highlight the potential applications of the work. This issue includes the first of such articles. The paper by Chen and Alani (2012) provides a method for quantitatively assessing the risk of wave overtopping of sea defences, analysing the probability of failure of the structures under future hydraulic and structural conditions, and providing cost-effective maintenance planning during the service life. The briefing article by Gouldby (2012) draws attention to some of the key differences with existing techniques, explains some of the issues in applying this type of approach and relates the work to other recent research outputs.

The second paper in this issue compares the impact forces on coastal structures generated by wind-waves and tsunami waves (Camilleri, 2012). The comparison is made using several different relationships taken from the literature and recent physical modelling experiments. The relative magnitude of the two types of wave loading is then assessed using climatological and tsunami risk information for the Mediterranean Sea.

In recent issues we have featured several papers that have looked at the issue of propeller scour (Hamill *et al*., 2004, 2009; Ryan and Hamill, 2011). This series of papers presents the theoretical background and experimental results that lead to some design equations for the maximum depth of erosion in the presence of a quay wall and the time-dependent development of the maximum depth of erosion within the scour pit. The final paper in this issue (Cihan *et al*., 2012) provides some further insight into this issue and considers how the under-quay bank slope influences the extent of propeller-induced jet erosion.

To discuss proposals for individual papers or collections please contact the editorial coordinator: Craig Schaper (tel.: +44 207 665 2240; e-mail: craig.schaper@ice.org.uk).

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