Editorial

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It is an honour to be taking over as chair of *Maritime Engineering's* editorial advisory panel. I would like to thank Kevin Burgess as former chair for the direction he has given the journal and for ensuring the continued success of the journal in providing a forum to share experiences of best practice, lessons learnt, innovative and novel techniques and methods and understanding.

Having served previously as a panel member under the direction of Brian O'Connor and Rachel Fowler when the journal was relaunched a number of years ago, it feels a little like returning home. With an early career spent as a researcher before moving into consultancy, 29 years on I find myself looking back on how things have changed both within academia and industry and how meeting future challenges in maritime infrastructure will require partnerships between government, industry and universities.

As engineers and scientists we live and work in world that is continually being reshaped through natural and anthropogenic action. With continued expansion in global population, these processes may sometimes be at odds with the demands of society and it is the responsibility of engineers and scientists to help manage the dynamic environment in which we live and to work to ensure the competing demands for finite resources can be satisfied in a sustainable manner. In addition to this, the dynamic and energetic environments in which these processes take place occur under a changing climate. From the tidal limit to the open oceans, the need to understand better the many processes that drive these changes is as relevant today as it was for those engineers and scientists who have gone before us.

With a significant increase in seabed infrastructure being constructed (cables, pipelines, subsea structures, offshore structures) geohazards such as seismic events, landslips and submarine mass failures pose a risk to this infrastructure. Tsunamis, whether earthquake generated, which is the primary trigger (of the order of 70–80%), or resulting from slope failures either land based or subsea, can be enormously destructive, with loss of lives and damage to infrastructure such as occurred during the great Alaska earthquake of 1964 (Plafker *et al.*, 1969). Therefore, the paper by Jaimes *et al.* (2016) in this issue is pertinent and important in proposing a methodology to identify tsunami hazard through the development of

regional flood hazard maps, allowing the results to be used for coastal management, tsunami mitigation measures and more detailed risk analysis.

Scour is also a hazard, and is both a hydrodynamic and geotechnical process as it relates to the movement of the seabed sediment as a result of the flow of water away from a structure, while the soil conditions are described by geotechnical parameters concerning the reduction in ground level around a structure.

A scour hazard assessment may be performed at a variety of levels. In its most simplistic form this could consist of an analysis of seabed features such as bedforms to identify seabed mobility in sands or identifying erosion in the case of clay soils (Whitehouse *et al.*, 2010). However, with the increase in computing power, the ability to model scour numerically is becoming more routine. In this issue, the paper by Zhang *et al.* (2016) clearly demonstrates the ability to model scour around subsea pipelines, albeit with the uncertainty related to insufficient field measurements against which to compare.

Protecting the coast and coastal infrastructure against damaging storms and/or tsunami events requires careful design. The paper by Anastasaki *et al.* (2016) investigates the performance of single-layer concrete units through numerical simulation using a combined finite-element method and discrete-element method (FemDem) approach. In this instance the applied disturbance to the concrete units is through vibration rather than the representation of a real sea state. While the results show the model to be capable of representing a range of armour units, this was not the primary aim of the study. The primary outcome from the study was to show that packing density is the most important parameter influencing the performance of single-layer armour units. The model requires further development, but demonstrates that numerical methods have the ability to become powerful aids in the design of coastal structures.

The briefing article by Kemp and Harlow (2016) highlights the use of non-standard rock groynes as a coastal protection measure. The paper suggests that it is possible to develop effective designs without strict adherence to industry standards and guidelines. The paper provides a useful reminder to how we design protection measures, whether we choose dynamic

measures that will adjust and reshape during their design-life and may even require maintenance or we design static protection measures that require little maintenance, but may be capital intensive. This is very relevant as we build in a sustainable manner, particularly with respect to offshore developments that may require scour countermeasures to be placed.

As I take up the role of chair I hope that I will be able to continue the great work of my predecessors in developing this journal as an important source for practising engineers and scientists and the journal of choice for those seeking to publish their work in the maritime field. As one of the journals from the Institution of Civil Engineers, and as a journal of a learned society, I believe that the journal should disseminate knowledge and the results of research in the maritime field and encourage the exchange of ideas and the application of the results of research in the field of maritime civil engineering, and I hope that as readers you will be encouraged to help the journal continue to grow through submission of your own contributions to its pages.

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