Editorial

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In this issue we feature three papers on quite different topics but all within core areas covered by the *Maritime Engineering* journal, illustrating the breadth of subject matter that this publication endeavours to bring to its readership.

The first paper, by Lemmens *et al.* (2016), considers issues associated with resistance to breaching in dikes. This is based upon experiences and experiments carried out in the Netherlands, although similar flood defence structures exist throughout the world so this has much wider significance; we are constantly reminded of the devastation and tragedy resulting from flooding and research into ways in which those risks can be reduced is always going to be welcome.

The work presented is focused upon the breaching process of dikes with sand cores, where a major breach can form rapidly if the protective cover is displaced, and how that can be slowed down through the addition of bentonite mixed in with the sand. Laboratory tests were conducted to examine the differences in erosion velocity between different sand–bentonite mixtures, and also looked to determine whether the additives affect soil parameters such as shear strength and permeability. The experiments provide useful findings with respect to slowing down the breaching process.

Innovation also plays a major part in how we seek to address issues of coastal defence or breakwater stability, with new types of armouring evolving in the quest to find the most technically and economically efficient solutions. It is important, however, that we recognise alongside these innovations we are still learning about how to interact with the marine environment and discovering new challenges to be overcome.

In their paper, Ingham *et al.* (2016) report on their investigations into the effects that alkali–silica reaction (ASR) has had upon the deterioration of concrete armour units used in a coastal defence scheme. Their work demonstrates the significance of potential leaching and alkali migration that can arise from concrete elements with complex geometry and/or relatively low surface area-to-volume ratios, and comparison is made between units in the tidal zone and in the splash zone, noting the differences in condition some 20 years after construction. An interesting observation is that the failed units actually comply with the current UK guidelines for prevention of ASR.

This highlights the importance of concrete durability design for marine structures, and in particular the concrete mix specification and concrete production aspects. Rather than simply relying on design codes, the authors suggest a need to look beyond the codes and undertake durability studies in cases where concrete will be exposed to aggressive conditions, and question whether the standards for specifying concrete need to be amended.

Ports and terminals present further and different challenges, often requiring structures in deep water where they will be exposed to large waves and space limitations constrain what structure types might be acceptable. Caisson breakwaters are used throughout the world under such conditions, and potential ways to improve the design of them continue to evolve.

Our third paper provides us with details on a new type of perforated caisson (Vázquez *et al.*, 2016) consisting of two lines of cylinder walls, one of which is partially porous, forming a chamber between. The intent is to improve hydraulic performance through better wave energy dissipation and a reduction in loads transmitted to the foundations.

Some encouraging results are provided by the testing, indicating some of the advantages that this configuration may have compared to more conventional caisson designs, both in terms of hydraulic performance and adaptability when it comes to construction.

Finally, my term as chairman and honorary editor of *Maritime Engineering* is coming to a close. One ambition during my term had been to maintain the strong academic support this journal enjoys, but ensure that what is published herein is the research that had now reached the point where the practitioner can begin to learn and benefit from that work. Together with the editorial panel we redefined the objective of the journal to, ‘publish papers and articles from industry and academia that convey advanced research that those developing, designing or constructing schemes can begin to apply, as well as papers on good practices that others can learn from and utilise for themselves.’ I hope we have gone some way to helping to move the journal in that direction.

A second ambition had been to foster closer links between this journal and the two major conferences that the Institution

of Civil Engineers hosts – ‘Coastal Management’, and ‘Coasts, Marine Structures & Breakwaters’ – the latter which takes place again in September 2017 in Liverpool. We have managed to achieve that, publishing a themed issue from Coastal Management in 2015, and have another on breakwaters planned for this time next year. Through those interactions the hope is that we have extended the body of reference for knowledge and learning of the readership of this journal who were unfamiliar with those conferences, and vice versa.

In closing, I would like to convey my thanks to the many individuals on the editorial panel that I have worked alongside on this journal over the past 3 years, and who have ensured the publication of high-quality and informative content, and welcome the new editor into the role.

REFERENCES

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