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Editorial

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One of this journal's core themes of sustainable construction and asset management in the maritime environment is central to many stakeholders, ranging from port operators to residents within the coastal zone. In keeping with this theme, the current issue includes papers focusing on optimising offshore foundations, assessing maintenance dredging regimes, improving material durability and optimising structural design.

Offshore wind turbine projects continue to progress worldwide, especially in Europe, with a trend towards deeper-water developments, typically resulting in increased construction and installation costs (particularly for foundations). Focusing on floating options with a view to reducing fabrication, installation and maintenance costs, this issue's first paper (Campos *et al*., 2016) presents a concrete spar buoy monolithic design, including both the tower and floater as a continuous structure. The post-tensioned reinforced-concrete structure described has been adopted for improved durability and fatigue performance as well as reduced whole-life maintenance. The monolithic design may also better suit quality control during construction by avoiding requirements for transition pieces between the substructure and superstructure; and interfaces such as grouted connections (which may be subject to quality issues and fatigue concerns) may be avoided. In addition to presenting design, construction and installation aspects, the paper includes a cost comparison with a steel alternative design, whereby material costs for the concrete design are shown to be significantly lower.

The second paper (Mendes *et al*., 2016) addresses the application of analytical tools (morphodynamic models) to the complex environment of wave-dominated coastal inlets. For coastal management in such dynamic marine environments, tools are required to support optimisation of maintenance dredging plans and coastal zone management in general. The paper outlines application of such models for assessment of an existing dredging plan and two proposed alternatives for a coastal inlet on the western Portuguese coast. Intended to optimise the inlet configuration by increasing the tidal prism and reducing flood dominance, the dredging plans are aimed at increasing the long-term stability of the inlet and reducing maintenance dredging. The methodology presented is shown to be adequate for investigating dredging solutions for wave-dominated inlets. The results demonstrate that dredging a second main channel in the southern part of this lagoon improves the stability of the inlet, reduces the formation of a flood delta and increases the tidal prism. In comparison, transverse secondary channels are demonstrated to be less beneficial (with potential long-term negative impacts).

The global striving towards more sustainable forms of concrete has led to significant research in cement replacements, including use of bio-derived materials. Within this theme, one such area receiving attention is the use of rice husk ash (RHA)-blended cements. For the design of reinforced concrete structures in a marine setting, the ability of any proposed mix to inhibit chloride ingress is a key requirement. In this regard, while the performance of standard cement mixes in the marine environment is relatively well understood, the new breed of mixes containing additions such as RHA remains largely untested. In the third paper, by Jayanti *et al*. (2016), RHA-blended cement concrete mixes have been tested within the tidal zone in the Gulf of Malaysia. Over a 2-year period, a series of samples containing various proportions of RHA were tested and compared with standard ordinary Portland cement mixes. The results show a notable reduction in measured chloride ingress over the standard non-replacement mixes. Although the test duration is modest, the results underline the potential of these cements to contribute to more sustainable maritime structures in the future.

Continuing with the sustainability theme, the efficient use of construction materials is always at the forefront of both designers' and clients' objectives. In the case of steel sheet piling, millimetre changes in thickness can result in significant whole-life cost implications. In many design code approaches prescriptive values on thickness may result in over-conservative design. Often in such cases, in an effort to derive more efficient section sizes, recourse to more sophisticated non-linear numerical approaches is permitted. Ahmed and Douglas (2016) present a case study which focusses on the design of a sizeable combi-pile quay wall structure with relatively thin and wide infill sheet piles, driven between large-diameter tubular steel piles. Using a validated non-linear finite-element model, the designers were able to justify a thinner section than that prescribed by the Eurocode provisions. Following this, the authors have gone on to suggest a modification to the relevant Eurocode guidance for sizing infill sheets of similar geometry and relatively low design pressures, which may be better suited to combi-walls with wider spacing between the tubular steel

piles and lower applied loads (e.g. where new combi-walls are proposed to allow deepening of existing berths for larger draught vessels).

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