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In Memoriam

Professor Ian G Bryden PhD CEng CMarEng CPhys FRSE FIMechE FIMarEST FInstP

Ian was born and brought up in Lockerbie, in Dumfriesshire, South West Scotland. Although he left home at 18 for Edinburgh, to study at The University of Edinburgh, he always maintained his links to that beautiful and peaceful corner of the country, through family, friends and frequent attendance at the home games of his beloved Queen of the South FC.

Ian’s journey to his becoming one of marine renewables’ most respected experts and innovators started with his PhD work in wave energy at the University of Edinburgh. This was followed by a short period in the private sector before his joining Heriot-Watt University in 1986 as a lecturer. The latter half of his 10 years with Heriot-Watt saw him move to Orkney to take a leading role in developing Heriot-Watt’s campus there.

1996 saw a move to Aberdeen, to take up the post of Head of Mechanical and Offshore Engineering at Robert Gordon University, and onwards to become that University’s Postgraduate Dean. During his time at RGU, Ian built a team who led the world in assessment of tidal energy resource, with focus upon the exciting possibilities around the Orkney Islands. During this time, he forged close links with marine renewables researchers at the University of Edinburgh under the EPSRC “SuperGen Marine” research consortium. In 2006, Ian was appointed to the Chair of Renewable Energy at
the University of Edinburgh, which opened the third of the four university chapters of his professional career.

During his time at Edinburgh, Ian joined the Organising Committee for this conference’s 2009 event, the first in Edinburgh. Ian was invited to deliver the opening keynote on marine renewables, in which he identified original sector innovators such as Stephen Salter, Trevor Whittaker and Peter Fraenkel, whose visions were combined with immense perseverance to see the sector survive a decade of near-zero research funding, and begin its rebirth in the 2000s. With typical modesty, Ian did not list his own contribution, but it is one which undoubtedly should be set alongside the contributions of those other founders and early-movers.

During his time at Edinburgh, Ian co-led the team who oversaw the design, construction, commissioning and operation of FloWave – the world unique, fully circular combined wave and current testing facility at Edinburgh. During the same period, as Head of the Institute for Energy Systems, Ian oversaw a period of substantial expansion. Ian’s time at Edinburgh was also the start of a very happy chapter in his personal life, when he met Hannah Rosnes, from whom he was to be inseparable!

In 2013, in a move that only surprised those that did not recognise the quiet ambition that characterised Ian’s professional career, Ian moved to the University of the Highlands and Islands (UHI) to take up the position of Vice-Principal for Research. Ian and Hannah moved to the beautiful setting of Strathpeffer, near Inverness.

Ian inspired those around him, partly though his expertise and enthusiasm, but also through the practical aspect of collaboration. Ian enjoyed teamwork, and enjoyed sharing his success by developing many careers around him. Looking at other reflections upon Ian’s life and contributions, a reader will be struck by the recurring, headline memories of Ian as a truly delightful person with humour, modesty and real warmth. He was a person who could talk authoritatively with the BBC Newsnight or University Principal at one moment, and would gain just as much pleasure teaching undergraduate students the next, or talking about football – Queen of the South of course – with the office cleaning staff.

Ian’s sudden and untimely death on 28th November 2016, at the age of only 58, shocked and terribly saddened all those that knew him. Ian’s loss was felt keenly by the Organising Committee, whose thoughts and sympathies are very much with Ian’s beloved partner Hannah and his beloved children and step-children. Thank you, Ian.
# Contents

**Editor’s Preface** xvii

**Session A.1 Opening plenary**

*History of Alderney and Jersey “harbours of refuge” – why did they fail?*

W. ALLSOP

*Construction Aspects of the Civil Works for the Storm Surge Barrier at Chioggia Inlet – Venice*

P. DE GIROLAMO, A. ROMANO, F. CAPOZZI, L. FRANCO, M. PAGANELLI, M. DI RISIO, D. PASQUALI, P. SAMMARCO, N. VINK AND P. VAN WESTENDORP

*Adaptation to Sea Level Rise in Cities: Lessons from Present Examples of Land Subsidence*

M. ESTEBAN, H. TAKAGI, L. JAMERO, N. D. THAO, T. MIKAMI, M. ONUKI, L. YAMAMOTO AND C. CHADWICK

**Session A.1 Discussion** 41

**Session A.2 LNG Terminals**

*Case Study: Design and construction of a breakwater in a remote location in Western Australia*

H. VANDER MEULEN AND T. BARNETT

*Challenges, Opportunities and Design Impacts for Different Construction Methods on Curtis Island LNG Jetties, Australia*

C. CHANG, P. KASTRUP AND A. TURNBULL

*Designing Out the Need for a Breakwater, Studies for Floating LNG Terminals and Alternative Mooring Solutions*

G. MILLAR

**Session A.2 Discussion** 79

**Session A.3 Beaches and Shorelines**

*Examples of Coastal Catch-up Including Barrier Roll-back, Marsh and Brick-earth Cliff Erosion in Southeast England*

U. DORNBUSCH AND P. MYLROIE

*Chesil Beach at Portland, Dorset: Recovering from the winter 2013/14 storms*

A. FRAMPTON, N. WATSON AND D. PICKSLEY

*The protection of the Happisburgh to Winterton coastal frontage – maintaining a sustainable approach despite long term uncertainty*

A. E. ROUSE, S. BARBROOK, M. JOHNSON, K. BURGESS, M. CALI AND P. HESK

**Session A.3 Discussion** 113
Session A.4 Construction in Ports

Protecting Port Construction Works in Open Sea- Hadarom Port, Ashdod, Israel  
N. OREN, M. RADOMIR AND D. F. DI CASTRO 119

Scour Protection and Effective Management of the New Deep Water Berth at Liverpool 2 Container Terminal  
G. SHARPE, D. MAKKINK, L.CHELLEW AND P. HESK 129

Developments for the Gwynt-y-Môr Offshore Wind Farm at Mostyn  
G. CAMERON, R. SAADI AND D. W. HUGHES 141

Session A.4 Discussion 153

Session A.5 Working in the Marine Environment

Risky Business: Dealing with Unexploded Ordnance (UXO) in the Marine Environment  
N. COOPER AND S. COOKE 157

Recent approaches to the Solidification and Stabilisation (S/S) of Contaminated Dredge Material in Ireland  
M. O’SHEA 169

Working within a sensitive, flood vulnerable environment – Landing the power cable for the Race Bank Offshore Wind Farm  
M. WEARMOUTH, C. MORENO, E. SHAW-SMITH, R. TURNER, F. JOHANSEN AND C. ENSOM 181

Session A.5 Discussion 195

Session A.6 Challenges at the Coast

Impacts of Climate Change on Asset Deterioration  
K. BURGESS, A. TAN AND M. GLENNERSTER 203

Coastal Road Asset Management: Dealing With Uncertainty Using Quantitative Erosion Monitoring And Modelling  
M. LIM, M. HOGG, M. WESTOBY, M. POUND, L. DUNLOP AND J. WOODWARD 215

Maximising the Standard of Protection of a Rock Revetment in Lahinch for a Predefined Capital Budget  
A. DANE, G. KENN AND J. SKANBERG-TIPPER 225

The Coastal Challenges of Adaptation for Sea Level Rise in Kiribati  
C. BROWN 235

Session A.6 Discussion 245

Session A.7 Innovation Spotlight (2)

Sandscaping: Making innovative coastal management work in the UK  

Downloaded by [ ] on [13/02/20]. Copyright © ICE Publishing, all rights reserved.
On the Application of Mega-Nourishment in the UK  
A. VALSAMIDIS, D. REEVE, Y. CAI AND N. DODD  
255

The use of sand encapsulated elements for beach protection  
E. ZENGERINK  
259

A Novel Technique for Nearshore Morphological Monitoring Using Marine Radar: Initial Deployment and Preliminary Survey Results  
C. O. BIRD, P. S. BELL, A. J. SINCLAIR, S. M. TRUSS AND A. J. PLATER  
263

Innovative Use of Drone Technology & 3D Numerical Modelling for Cliff Stability Evaluation  
267

Marine Construction in Concrete  
M. HAWKSWOOD AND S. CUTHILL  
273

Ecological Enhancement of Coastal Infrastructure  
M. MACARTHUR, L. A. NAYLOR, J. D. HANSOM, M. T. BURROWS AND I. BOYD  
279

A physics-based rubble mound stability simulator for armour layers  
283

Measurement of Layer Thickness, as-Built Bulk Density and Porosity in Antifer Cube Armour Breakwaters  
A. BAYRAM, B. PAPARIS, D. OSTROVSKY AND N. OREN  
287

Design for Accessibility for Floating Structures  
M. EAST  
293

UK port preparedness for climate change: The benefits of appropriate adaptation  
E. F. FLEGG, S. BROWN, R. J. NICHOLLS AND M. TSIMPLIS  
297

Session A.7 Discussion  
301

Session A.8 Breakwater Armour  
311

Design and Construction of the Cubipod® Armoured West Breakwater for the Outer Port of a Coruña (Spain)  
A. CORREDOR, V. BAJO, F. NOYA, E. MACIÑEIRA AND J. R. MEDINA  
311

Hydraulic response & placement methods for a new single-layer concrete armour unit called C-ROC™  
S. PERRIN, C. GIRAUDEL, S. COLLINSWORTH AND J. MELBY  
321

Physical Modelling of Breakwater Roundheads Armoured with Tetrapods  
O. J. SAYAO AND R. F. DA SILVA  
331

Automated industrial production of ACCROPODE™ II armour units: Case of “NRL” on Réunion Island  
M. AIT FORA AND C. GIRAUDEL  
343

Session A.8 Discussion  
353
Session A.9 Harbour Development

The development of Aberdeen Harbour Expansion Project 361
I. CRUICKSHANK, T. YOUNG, K. YOUNG AND G. ALEXANDER

Investigation and Simulation of Failure Mechanism of a Port Basin Revetment, Generation of Remediation Design and Re-construction Works 373
E. BIJL, J. VAN DER MEER, F. BONFANTINI AND S. TE SLAA

Design of a new fishery harbour in Masirah Island, Oman 385

Session A.9 Discussion 397

Session A.10 Construction at the Coast

Practical Use of Technology in Delivering the UK’s Largest Coastal Defence Scheme on the Fylde Coast, Lancashire 403
C. GREEN AND S. BARKER

Innovative Construction of the Sandsend Road Coastal Protection Scheme using the ‘MULE’ 417
N. COOPER, G. DEWE, G. KILVINGTON, S. CRIBBIN, C. QUINN AND M. YOUNG

Hopton coastal defences – failure to replacement in 24 months 429
A. TINDLE, P. C. BARBER AND D. ROSKELL

Session A.10 Discussion 443

Session A.11 Multi-Purpose Design

Multi-Purpose Breakwaters 449
T. MANSON, J. F. GILMAN, S. PERKOL-FINKEL, I. SELLA AND J. F. MARRONE

Planning and Design of Swansea Bay Tidal Lagoon 459
I. ROBERTS, T. VAN DER PLAS, T. FIJEN, A. DIXON, M. HUGHES AND L. MACDONALD

Crown Walls in Mass and Reinforced Concrete: The Way to Aesthetics in Maritime Works 471
V. NEGRO, M. MARTÍN-ANTÓN, J. M. DEL CAMPO, J. S. LÓPEZ-GUTIÉRREZ AND M. D. ESTEBAN

Session A.11 Discussion 481

Session A.12 Closing Plenary

Stabilisation to Railway Coastal Defences at Shakespeare Beach – Dec 2015 to Autumn 2016 487
J. VINCETT, R. FACAL, R. NEWELL AND I. ARDEN

Wave overtopping hazard to pedestrians: video evidence from real accidents 501
C. SANDOVAL AND T. BRUCE
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Standard Approach to Coastal Structures?</td>
<td>513</td>
</tr>
<tr>
<td>S. BURCHETT, C. BOYSONS, S. EVERITT AND S. OSBORN</td>
<td></td>
</tr>
<tr>
<td>Session A.12 Discussion</td>
<td>529</td>
</tr>
<tr>
<td>Session B.1 Innovation Spotlight (1)</td>
<td></td>
</tr>
<tr>
<td>Managing Historic Marine Infrastructure: A Conservators View</td>
<td>535</td>
</tr>
<tr>
<td>H. J. WYATT AND O. E. C. PRIZEMAN</td>
<td></td>
</tr>
<tr>
<td>Improving Habitat Heterogeneity on Coastal Defence Structures</td>
<td>543</td>
</tr>
<tr>
<td>A. HALL, R. J. H. HERBERT, S. L. HULL AND R. P. SIDDLE</td>
<td></td>
</tr>
<tr>
<td>ECOncrete Technologies: Bio-Enhanced Concrete for Coastal and Marine Infrastructure</td>
<td>549</td>
</tr>
<tr>
<td>I. SELLA, S. PERKOL-FINKEL AND A. RELLA</td>
<td></td>
</tr>
<tr>
<td>Dune and residential buildings protection using geotextile tubes, Atlantic Ocean Portugal</td>
<td>553</td>
</tr>
<tr>
<td>M. TER HARMSEL</td>
<td></td>
</tr>
<tr>
<td>An advanced design project on ‘Port Engineering and Maritime Works’ in teaching future engineers</td>
<td>557</td>
</tr>
<tr>
<td>G. CARPENTIER, P. SILVA, W. ALLSOP, D. MOUAZÉ, H. J. VERHAGEN, L. GAUTIER-CHEVREUX AND M. BAGIEU</td>
<td></td>
</tr>
<tr>
<td>Structure-from-Motion (SfM) monitoring of nourished gravel beaches in Croatia</td>
<td>561</td>
</tr>
<tr>
<td>K. PIKELJ, I. RUŽIĆ, M. R. JAMES AND S. ILIC</td>
<td></td>
</tr>
<tr>
<td>Marine Structure Integrity Assessment - Peterhead</td>
<td>565</td>
</tr>
<tr>
<td>A. WALKER AND B. CHALLIER</td>
<td></td>
</tr>
<tr>
<td>Session B.1 Discussion</td>
<td>569</td>
</tr>
<tr>
<td>Session B.2 Upgrading Existing Infrastructure</td>
<td></td>
</tr>
<tr>
<td>Alderney Breakwater, a developed rehabilitation solution</td>
<td>575</td>
</tr>
<tr>
<td>O. J. JENSEN, A. BISGAARD, H. WOOD AND N. GENOVESE</td>
<td></td>
</tr>
<tr>
<td>Appraisal of Lochranza Ferry Terminal for a hybrid-fuel ferry</td>
<td>587</td>
</tr>
<tr>
<td>M. KIRKPATRICK</td>
<td></td>
</tr>
<tr>
<td>St Mary’s Harbour Improvement Works, Isles of Scilly</td>
<td>599</td>
</tr>
<tr>
<td>R. J. VELDKAMP, D. PRIMMER, R. HUTCHISON AND J. WILKINSON</td>
<td></td>
</tr>
<tr>
<td>Session B.2 Discussion</td>
<td>613</td>
</tr>
<tr>
<td>Session B.3 Coastal Developments</td>
<td></td>
</tr>
<tr>
<td>Cadzand-Bad Complex Integral Design of Primary Flood Defences, Marina and Public Space</td>
<td>617</td>
</tr>
</tbody>
</table>

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Shore protection with beach islands  627
C. HELLEDIE AND O. J. JENSEN

Coastal Protection as a Platform for Regeneration – Colwyn Bay Waterfront Project as an Exemplar for Other UK Coastal Resorts  637
B. POULTON, H. JONES AND G. EDWARDS

Session B.3 Discussion  647

Session B.4 Joint Design Conditions

Assessing the joint probability of sea conditions: A robust approach  653

An event-based approach for extreme joint probabilities of waves and sea levels  665
F. MAZAS AND L. HAMM

An Approach to Evaluating Coastal Total Water Levels over Varied Temporal and Spatial Scales for Future Design and Vulnerability Assessment  675

Session B.4 Discussion  687

Session B.5 Heritage Structures

Orphan breakwaters – what protection is given when they collapse?  697
W. ALLSOP, A. N. PEARSON AND T. BRUCE

Exploring structural stability of old blockwork breakwaters  709
A. N. PEARSON AND W. ALLSOP

Wave impacts on the Eddystone lighthouse: a field and laboratory investigation  721
D. BANFI, A. RABY, D. SIMMONDS, Y. RAFIQ AND G. BULLOCK

Overcoming the Challenges of Refurbishing a Victorian Coastal Defence – A case study from Cromer Coastal Protection Scheme  733
C. PHANG, P. FREW AND P. LAWTON

Session B.5 Discussion  743

Session B.6 Understanding Hydro/Morpho-Dynamic Impacts for Design

Tidal Lagoon Swansea Bay: Modelling the Effects of the Scheme on Marine Physical Environment  751
A. FULFORD, B. COOPER AND TLSB

Evolution of Offshore Sandbanks and Channels and their Influence on Shoreline Behaviour in a High Energy Environment Using Induction Modelling at Great Yarmouth UK  761
P. C. BARBER

xii
Hydrodynamic and Morphological Response of the Mersey Estuary to the on-going Mersey Gateway Bridge Construction Works 775
A. WRIGHT

Pagham Harbour: Managing a dynamic coast for people and the environment 787
C. SCOTT AND I. TOWNEND

Session B.6 Discussion 797

Session B.7 Ecological Aspects of Design

Developing a business case for greening hard coastal and estuarine infrastructure: preliminary results 801

Assessing the performance of natural and nature based defences 813
N. PONTEE, S. NARAYAN, B. REGUERO, M. BECK AND I. LOSADA

Challenges in Applying Ecological Enhancement Factors into Coastal and Marine Concrete Construction 823
A. RELLA, S. PERKOL-FINKEL, A. NEUMAN AND I. SELLA

Session B.7 Discussion 833

Session B.8 Scheme Development

Architecture and wave defence, the Louvre Abu Dhabi 839
M. VAUGHAN-SHAW, P. BRENTON AND T. PULLEN

3D Physical Modelling and Revetment Design for the Billy Bishop Toronto City Airport Extension 849
S. BAKER, A. CORNETT AND C. GLODOWSKI

Constanta Coastline Rehabilitation - Application of advanced models and practical solutions to develop a sustainable low-maintenance coastal defence scheme 859
C. LANGEVELD, P. DE PATER, H. STEETZEL AND J. MENNINGA

Session B.8 Discussion 869

Session B.9 Asset Risk and Reliability

Using Reliability Metrics to Evaluate Vulnerability of a Coastal Dike Subjected to Climate Change 875
H. R. MORITZ, P. S. O’BRIEN AND K. WHITE

Improving the Representation of the Fragility of Coastal Structures: Brunel Seawall (Dawlish, UK) 887
R. JANE, D. SIMMONDS, B. GOULDBY, J. SIMM, L. DALLA VALLE AND A. RABY

Uncertainty in Coastal Structure Reliability 901
J. MELBY, V. GONZALEZ AND N. NADAL-CARABALLO

Session B.9 Discussion 911
### Session C.1 Rock Armour

**Armourstone for Berm Breakwaters**  917  
S. SIGURDARSON AND J. VAN DER MEER

**Measuring damage in physical model tests of rubble mounds**  929  
B. HOFLAND, P. ROSA-SANTOS, F. TAVEIRA-PINTO, E. DE ALMEIDA, R. LEMOS, A. MENDONÇA AND C. J. FORTES

**Rock Structures - Have advances in technology made them any better?**  941  
M. GLENNERSTER, M. JOHANSEN AND P. HESK

**Session C.1 Discussion**  951

### Session C.2 Waves Structures Interaction

**Damage to the Mutriku OWC breakwater – some lessons from further analysis**  957  
E. MEDINA-LÓPEZ, W. ALLSOP, A. DIMAKOPOULOS AND T. BRUCE

**Hydrodynamic Load Acting on Storage Tank Due to Tsunami Inundation Flow**  969  
S. ARAKI, T. FURUSE, S. IWASAKI, W. KUNIMATSU AND S. AOKI

**Wave Overtopping and Loading for the Recurved Parapets on the Crest of Rubble Mound Breakwater**  979  
S.-H. OH, S.-C. JANG AND J. LEE

**Session C.2 Discussion**  987

### Session C.3 Developments in Overtopping (1)

**The Conundrum of Specifying Very Low Wave Overtopping Discharges**  991  
E. SILVA, W. ALLSOP, R. RIVA, P. R. SANTOS, F. T. PINTO, A. MENDONÇA AND M. T. REIS

**Experimental study of the mean wave overtopping rate of berm breakwaters at different wave steepness conditions**  1001  
K. PILLAI, A. ETEMAD-SHAHIDI AND C. LEMCKERT

**Recalibration of Overtopping Roughness Factors of Different Armour Types**  1011  
M. R. ELDRUP AND T. L. ANDERSEN

**Session C.3 Discussion**  1021

### Session C.4 Applying CFD

**A Study on the Behaviour of a Relatively Small Caisson Floating in Wave Fields and its Effective Installation Method**  1029  
Y. KOTAKE, Y. OOMUKAI, A. MATSUMURA AND T. NAKAMURA

**Numerical Modelling of Caisson Breakwaters Under Sliding and Overturning Motion Using the Proteus Toolkit**  1039  
A. DIMAKOPOULOS, G. COZZUTO, T. DE LATAILADE, C. KEES AND G. CUOMO
Numerical modelling of wave downfall pressures on the deck landward of a vertical breakwater
A. BAINES, L. S. CUNNINGHAM AND B. D. ROGERS

Session C.4 Discussion

Session C.5 Advancements in Filters & Underlayers

New Design Guidance for Underlayers and Filter Layers for Rock Armour under Wave Attack
J. VAN DER MEER, M. VAN GENT, G. WOLTERS AND D. HEINEKE

Modelling of open filters under wave loading
M. R. A. VAN GENT, N. G. JACOBSEN AND G. WOLTERS

Transport of Rock on Dynamic Slope Under Oblique Wave Attack
G. SMITH, M. VAN GENT AND D. VAN KESTER

Stability of very wide graded material, designed as breakwater core, under wave attack
T. VAN DER PLAS, J. VAN DER MEER, E. R. DOMINGUEZ AND E. BIJL

Session C.5 Discussion

Session C.6 Tsunami Impact

Numerical Analysis on Hydraulic Characteristics of Tsunami Overtopping Caisson Breakwaters
J. MITSUI, S. KUBOTA, A. MATSUMOTO AND M. HANZAWA

Clarifying the Stability of Armour Blocks behind the Caisson against Tsunami After Abrupt Change of Breakwater Width
K. SUZUKI, S. ZIKUHARA, K. TATEWAKI AND Y. HOSOKAWA

Experimental Study on Breakwater Against Overflow and Big Waves
T. KITA, K. SUZUKI AND N. TSURUTA

Tsunami inundation forces on coastal buildings – effects of building layout
I. CHANDLER, W. ALLSOP, R. RIVA AND T. ROSSETTO

Session C.6 Discussion

Session C.7 Waves Design Conditions

The Conversion of Spectral Wave Heights to Design Wave Heights
M. MUTTRAY AND J. GUTIÉRREZ MARTINEZ

Wave Spectra revisited – New guidelines based on observations
L. VIA-ESTREM, N. P. BUNN AND R. M. ABERNETHY

Effects of Storm Duration and Sequencing on Armour Layer Damages

Session C.7 Discussion
Session C.8 Developments in Overtopping (2)

Causes for Increased Wave Overtopping on Rubble Mound Breakwaters and Revetments
P. BAKKER, B. REEDIJK, J. MANAOIS, M. VAN DE KOPPEL AND M. MUTTRAY 1205

The Influence of Geometrical Shape Changes on Wave Overtopping: a Laboratory and SPH Numerical Study
S. DONG, M. SALAUDDIN, S. ABOLFATHI, Z. H. TAN AND J. M. PEARSON 1217

The new EurOtop Neural Network tool for an improved prediction of wave overtopping
S. M. FORMENTIN, B. ZANUTTIGH AND J. W. VAN DER MEER 1227

Session C.8 Discussion 1237

Session C.9 Waves on Structures

Caisson design for high storm conditions
M. YOUNG, D. ROBINSON AND T. PULLEN 1243

Investigation of the performance of a multi-functional harbour structure
G. PALMA, P. CONTESTABILE, S. M. FORMENTIN, D. VICINANZA AND B. ZANUTTIGH 1255

Hydraulic loads on a large lock gate
H. VOORTMAN, T. WIJDENES, H. TUIN, W. VAN DER STELT, D. VAN GOOLEN, P. VAN LIEROP, L. LOUS AND W. KORTLEVER 1267

Session C.9 Discussion 1277

Author Index 1279
Editor's Preface

These proceedings present over 90 peer reviewed papers and discussion from the latest of the ICE Coasts, Marine Structures and Breakwaters conference, the 11th in the series of these international events that began in 1983. Over that time this has grown from a primary focus on breakwaters to a conference that now covers a broad spectrum of coastal engineering and marine related topics. It brings together practitioners who must design, construct, maintain, and operate infrastructure for ports and harbours, terminals, renewable energy, industrial facilities, beaches and coastal defence, together with those advancing the research and developments that continue to improve our understanding of how to work in this environment.

Over three days, speakers presented authoritative papers describing the design, construction, analysis and performance of a wide range of such structures. Those papers include the latest research and developments, new guidance and innovations, and practical lessons learned from experience.

Papers were presented in 30 sessions, mostly running in parallel but with a single plenary on each of the three days of the conference. As ever, questions to and discussion with the authors remain an essential part of this conference, and questions and answers have been captured and included in these proceedings, providing a fuller record of the event. Readers should note any supplementary data or knowledge added by the authors in these sections, as well as noting any contrary or qualifying arguments, information or conclusions.

This conference continually evolves, and this time we took a decision to actually reduce the number of papers from the previous event, seeking to ensure an even greater focus on the already high standard of quality, over quantity, and a longer amount of time provided for each presentation. That also gave scope to showcase over 20 ‘Innovation Spotlight’ features. These rapid-fire presentations were designed to bring to the attention of the delegates new and developing practices and understanding that are currently ongoing and could help to shape the way we do things in the future. Some of those innovation spotlight presentations were accompanied by short briefing papers, which are also included in these proceedings.

Finally, as conference chairman, I wish to thank ICE conferences for their work in arranging this event, and the authors and contributors for the papers and discussions, without which these proceedings could not be published. I also wish to record my particular thanks to the members of the Organising Committee, to whom much of the success of this event is due, and to my predecessor William Allsop who has held the reins for the previous 5 conferences and instrumental in developing this conference to its present strength.

Kevin Burgess
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ICE Breakwaters Conference Organising Committee
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