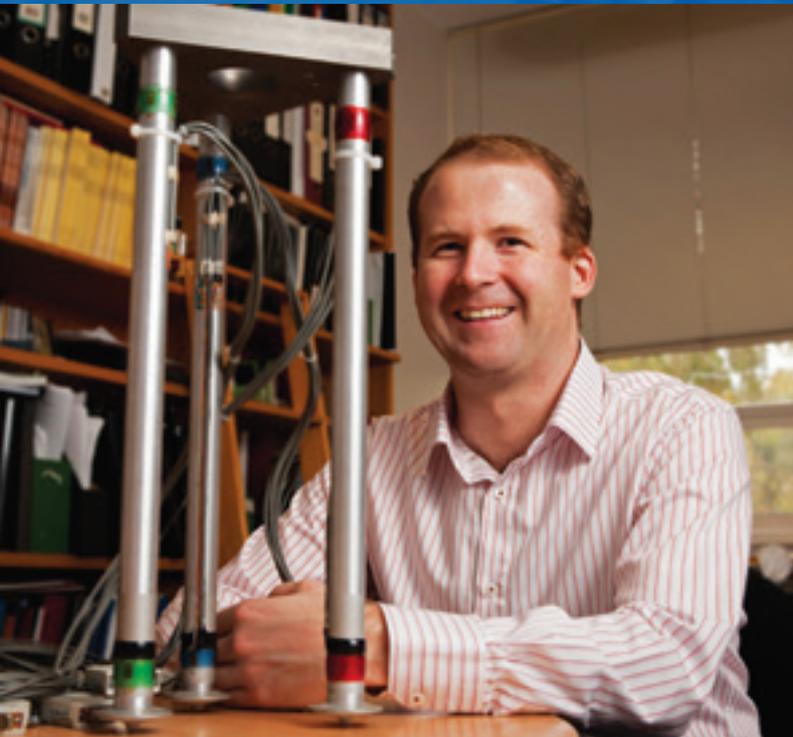


Director's Report



Winthrop Professor Mark Cassidy
Director, Centre for Offshore Foundation Systems

This is our sixteenth annual report and my seventh as Director. However, for most of the year, I left COFS in the capable hands of Acting Director Christophe Gaudin and Business Manager Lisa Melvin. I spent my time away on an enjoyable (and productive) sabbatical at the Norwegian Geotechnical Institute in Oslo. I thank Christophe, Lisa and NGI for allowing me this opportunity. I returned just in time to present COFS' achievements for 2012.

The Australian Research Council Centre of Excellence for Geotechnical Science and Engineering (ARC CoE CGSE), of which COFS is a major node, held two major workshops in 2012. The first, held in February in Perth, aimed to establish collaborative research streams for the centre. The program comprised close to fifty presentations spanning two full days. Just before Christmas we returned to Port Stephens (an hour north of Newcastle) to consolidate progress. The latter workshop concentrated on developing the four research themes, as well as scientific planning of the National Soft Clay Testing site to be established in Ballina, NSW, in 2013.

The Director of The Lloyd's Register Educational Trust, Mr Michael Franklin, launched the inaugural The Lloyd's Register Educational Trust Oration, Australia, in style on 8 November 2012. Over 200 attendees from 48 different organisations heard Mark Randolph deliver "*Geotechnical engineering on and off the North-West Shelf of Australia*", before retreating to a cocktail party under the stars on the UWA oak lawn. It was a truly memorable night and we thank our international visitors, including John Rowley of Lloyd's Register Asia and Professor Yoo Sang Choo of the National University of Singapore, for their considerable efforts to attend. A webcast of Mark's lecture is available on our web site. We look forward to the 2013 Oration to be presented by Dr Suzanne Lacasse, Technical Director of the Norwegian Geotechnical Institute, on 27 May 2013.

At COFS we are all proud that David White has been appointed to the new Shell EMI Chair in Offshore Engineering. Established through UWA's Energy and Minerals Institute (EMI) and funded by Shell Australia, this Chair will strengthen world-class research and education for Western Australia's offshore petroleum industry. David will lead an enhanced research and education program focusing on offshore engineering, building on UWA's capabilities and serving the needs of local and international industry. COFS is excited to be part of this new initiative.

The frantic pace of offshore developments in Australia seems unrelenting with an estimated \$120 billion of oil and gas infrastructure currently under construction.

COFS remains an important resource for this local industry. During 2012, soil characterisation, centrifuge and O-tube tests were conducted for clients Advanced Geomechanics, Arup, BHP Billiton, BP, Chevron, Delmar, Engineering Geology, ExxonMobil, Fugro, Inpex, Keppel Offshore and Marine Technology, Knight Piésold, Shell, Subsea7, Total, Woodside Energy and WorleyParsons. Overview of these studies, as well as the significant upgrades in equipment that we have embarked on, are provided in the separated Soil Characterisation, Centrifuge, O-Tube and Rock Mechanics Laboratory reports.

The UWA O-tube facility (as highlighted on the front cover and in sections within) continued to receive industry accolades by winning the Innovation and Development category of the 2012 WA Engineering Excellence Awards and the Subsea Energy Australia Innovation and Technology award. The O-Tube team of David White, Scott Draper and School of Civil & Resource Engineering academics Liang Cheng and Hongwei An are congratulated for this ongoing success.

Our contribution to the analysis of pipelines was also recognised with 2012 PhD graduate Bassem Youssef receiving the Australian Gas Innovation Award Commendation. He was recognised for his unique pipeline on-bottom stability simulation program, developed as part of his PhD study. This provides pipeline engineers with a reliable and accurate pipeline design tool capable of a 3D simulation of offshore pipelines under the action of wave and current loading.

COFS research continues to receive international recognition with three of our papers receiving awards. Christophe Gaudin, Britta Bienen and I received the Geotechnical Research (Bishop) Medal from the Institute of Civil Engineers (ICE, UK). Our *Géotechnique* paper "Investigation of the potential of bottom water jetting to ease spudcan extraction in soft clay" was considered the best geotechnical engineering paper in all ICE proceedings for the year. David White and Dr Johnny Cheuk (a former visitor to COFS, now with AECOM, Hong Kong) are congratulated for receiving the British Geotechnical Association (BGA) Medal for their paper "Modelling the dynamic embedment of seabed pipelines", also published in *Géotechnique*. Shazzad Hossain and I, along with colleagues from ExxonMobil, SAGE, Keppel, GustoMSC and the University of Oxford, were recognised with the ASCE Best Paper Award of the 44th Offshore Technology Conference. Held annually in Houston, OTC remains the world's foremost offshore engineering conference. It was attended by 89,400 delegates in 2012. Our paper, *Foundation modelling and*

assessment in the new ISO Standard 19905-1 (paper number OTC 23521 2012), provides a summary of the most recent ISO guidelines for site specific (geotechnical) assessment of mobile offshore jack-up rigs.

The start of 2013 has seen our Local Organising Committee for the 8th International Conference on Physical Modelling in Geotechnics begin to finalise plans for this event, which will take place in January 2014. By the time you receive this report, we will be mid-way through the review process of the ~200 papers that have been submitted to this event, which COFS will be hosting. We look forward to welcoming many of you to Perth next January.

Vickie Kong and Bassem Youssef are both congratulated for successfully completing their PhD theses in 2012. Vickie has joined local geotechnical consultancy Advanced Geomechanics and Bassem has joined local pipeline designers Atteris.

Congratulations to Shazzad Hossain and Yinghui Tian who were promoted to Associate and Assistant Professor respectively.

There was a marked changing of the guard at COFS in 2012. After 27 years of academic service at UWA Martin Fahey could no longer resist the pull of Italian travels and retired in February. As one of the original chief investigators for the ARC Special Research Centre Martin was the founding Deputy Director of COFS. He also led the research stream dealing with fundamental properties of calcareous soils and was instrumental in building and managing our soil characterisation laboratory. Martin will be sorely missed at COFS as he was a supportive colleague and wonderful mentor (written with personal thanks). His advice was always sound, fair and sprinkled with a gracious sensor of humour. We also said farewell to long serving centrifuge technicians Don Herley (20 years in the beam!) and Bart Thompson (in early 2013 after 15 years in the drum), as well as our senior laboratory engineer Binaya Bhattarai. Details of all centrifuge leaving parties are best kept from annual report scrutiny. 2012 did see the return of Conleth O'Loughlin to the position of Centrifuge Manager after a seven year 'sabbatical' back in Ireland. We were also pleased to welcome Antonio Carraro from Colorado State University to lead our offshore sediments research stream.

I trust you will enjoy the highlights presented in our 2012 Annual Report.

Mark Cassidy
Director, Centre for Offshore Foundation Systems

