



Ian Coghlan

Senior Coastal Engineer

Ian has completed a Master of Engineering Science degree with specialisation in the field of Coastal Engineering and Management, a Bachelor of Engineering (Mechanical) degree, with first class honours and a Diploma in Engineering Practice. He has over a decade of experience working at WRL, and primarily manages projects in the fields of coastal structures, processes, hazards and coastal management. These studies include field investigations, physical modelling, numerical modelling, desktop analysis and data analysis. Ian is a member of the Institution of Engineers Australia and regularly attends their Coastal, Ocean and Port

Engineering Panel (Sydney Division) seminars. He has been a surfer for over 15 years.

Ian is acknowledged as an Australian expert in sand-filled geotextile container structures in the coastal zone. As a junior engineer, he spent the best part of 2007 carrying out more than 200 physical modelling tests on scale geotextile containers in WRL's 3 m wide wave flume. The results from this research went on to inform the seminal paper on the design of geotextile container seawalls published in the *Geotextile and Geomembranes* journal in 2011. He has also co-authored conference papers on geotextile container structures, including groynes.

Ian has extensive experience with oyster shell filled bags for riverbank erosion protection, floating breakwaters for improving marina wave climate and more traditional coastal structures composed of rock and concrete. He is passionate about getting on-the-ground and collecting field data at project initiation to steer each study to success. Ian is regularly engaged as a fair and balanced peer reviewer.

Qualifications

BE Hons 1 & Uni. Medal (Mechanical Eng), UTS, 2005
Diploma of Engineering Practice, UTS, 2005
MEngSc (Coastal Engineering), UNSW, 2009

Professional history

2014-Current: Senior Coastal Engineer - WRL, UNSW
2005-2014: Coastal Engineer - WRL, UNSW
2002-2003: Project Engineer - GHD Consulting

Expertise

- Structure assessments, field investigations & data collection
- Rubble mound coastal structures
- Sand-filled geotextile containers
- Rigid marine and coastal structures
- Physical model design, construction and testing
- Beach geomorphology and coastal stabilisation
- Coastal and estuary processes and hazards
- Numerical modelling (wave propagation, erosion, overtopping)
- Climate change adaptation
- Project management

Summary of relevant experience

Coastal protection: preliminary design

2011-2016: Kingscliff Beach (seawall, groynes, nourishment), NSW
2011-2012: Black Rocks Campground, Bundjalung NP, NSW
2012-2013: Caseys Beach (South) seawall upgrade Design
2013: Interim beach access stabilisation works, Byron Bay
2016: Caseys Beach (north) seawall upgrade design
2016: Fairy Bower seawall remediation, Manly, NSW

Novel coastal protection solutions

2005: Hydraulic loading of floating breakwaters
2006-2007: Wave screen breaking water testing (ANMM), NSW
2007: Flume testing of a floating tyre breakwater screen
2008-2011: New Brighton Beach scraping, NSW
2015: Wave testing of oyster shell filled bags

Condition assessments for existing coastal structures

2012: Seawall structure assessment at Bilgola and Clontarf

Sand-filled geotextile containers

2006-2010: ELCORock® sand-filled geotextile containers
2010: Code of practice for coastal emergency works, NSW
2013: Use of sandbags for coastal protection, NSW
2014: Brophys Beach (NZ) geotextile seawall review

Traditional coastal and marine structures

2006: Shell Cove Marina breakwaters, NSW
2006: Dalrymple Bay coal terminal, QLD
2006: Koniambo Wharf, New Caledonia
2007: Wyndham Harbour breakwaters, VIC
2007-2008: Bounty Bay breakwater, Pitcairn Island
2008-2009: Gorgon LNG terminal, Barrow Island, WA
2009-2010: Hay Point coal terminal reclamation, QLD
2011: Abbot Point multi-cargo facility, QLD
2011: Browse LNG terminal, James Price Point, WA
2012: Coffs Harbour eastern breakwater, NSW
2015: Waitangi Wharf development, Chatham Islands