

# Water and Environment News



Inside: **Saving Water in Sydney's Parks**, New Moreton Bay Models **and more....**



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# Welcome

Welcome to our second edition of W&E News for 2015. I am pleased to report that the Water and Environment Group (WEG) is embarking on several initiatives that will help us remain client-focused and agile in our markets. The WEG has now established a dedicated Software Business Unit. This Business Unit will be responsible for enhancing and growing our software services nationally and internationally, to support our consulting projects and also for growing our commercial software sales. We now have a formal Technology and Innovation Manager position and a formal Business Development Manager position, and will shortly be appointing dedicated Market Lead positions to enable us to target our efforts on key market sectors. We are also undertaking some structure enhancements within our Queensland office, which includes appointing a new Assistant Business Unit Manager for that office. Exciting times ahead.


We are keen to ensure that the WEG continues to provide the best offering to our clients and we always value your thoughts and feedback on how we can better serve your needs into the future.

We propose to deliver future editions of the W&E News more regularly, but with a focus on specific market areas, viz: water quality; flooding; coastal & metocean, and environment.

This edition of our News highlights a selection of some of the fascinating projects being undertaken across our offices. I trust that you enjoy the articles presented.

On a personal note, the Solomon Islands Climate Change Adaptation Project we completed last year has drawn more media attention, this time from The Age, with a wonderful article about the people of Taro Island and the importance of the Project to their future livelihood. See the interactive article here: <http://www.theage.com.au/interactive/2015/the-vanishing-island/>

If you have any queries on the articles or would like further information, please do not hesitate to contact the relevant staff.

  
Dr Philip Haines,  
Acting Managing Director,  
Water and Environment



“we always value your thoughts and feedback on how we can better serve your needs into the future”



# Moreton Bay Models

Moreton Bay is one of Queensland's most important coastal resources, supporting a range of services including fishing, tourism and shipping. It is also a key ecological resource and as such has been carefully managed since the mid-1990s.

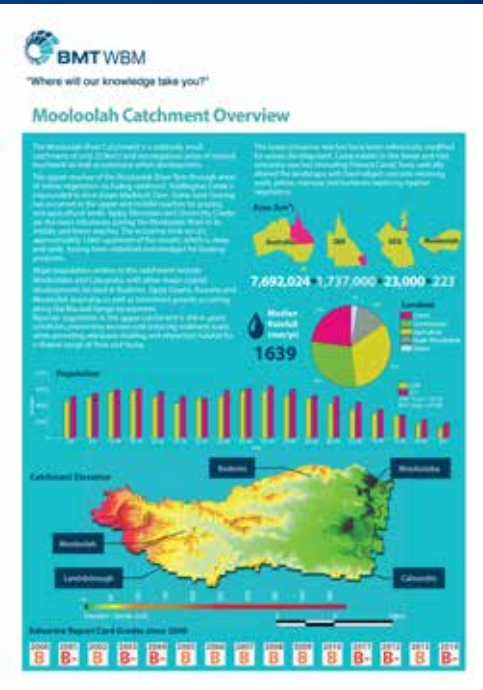
In collaboration with Healthy Waterways, BMT WBM has recently developed 13 sets of linked catchment, hydrodynamic, and water quality models that represent Moreton Bay and its estuaries.

Development of the modelling framework was both a technological and scientific challenge, as it incorporated eWater's Source catchment software, BMT WBM's in-house three dimensional hydrodynamic engine, TUFLOW FV, and University of Western Australia's water quality model, AED<sup>2</sup>. Use of our high-performance computer allowed for inclusion of a greater degree of spatial resolution than would otherwise be possible, resulting in models that resolve a range of important, but spatially contrasting natural features.

More broadly, the suite represents a leap forward in the use of modelling in the region for a number of reasons, not least because a mix of models and monitoring will be used in the production of Healthy Waterways' annual Report Card for the first time.

The 2015 Healthy Waterways Report Card will be released on Thursday 22 October at four launch events held simultaneously across South East Queensland. The Report Card helps understand and communicate the condition and benefits of South East Queensland's waterways, as well as the actions we undertake to protect and improve them. Find out more on the Healthy Waterways website [www.healthywaterways.org](http://www.healthywaterways.org).

Healthy Waterways and their members will now be able to use the models to assess the link between proposed management actions and water quality outcomes in the region. This will help to inform future environmental policy and the direction of investment in Southeast Queensland for years to come.



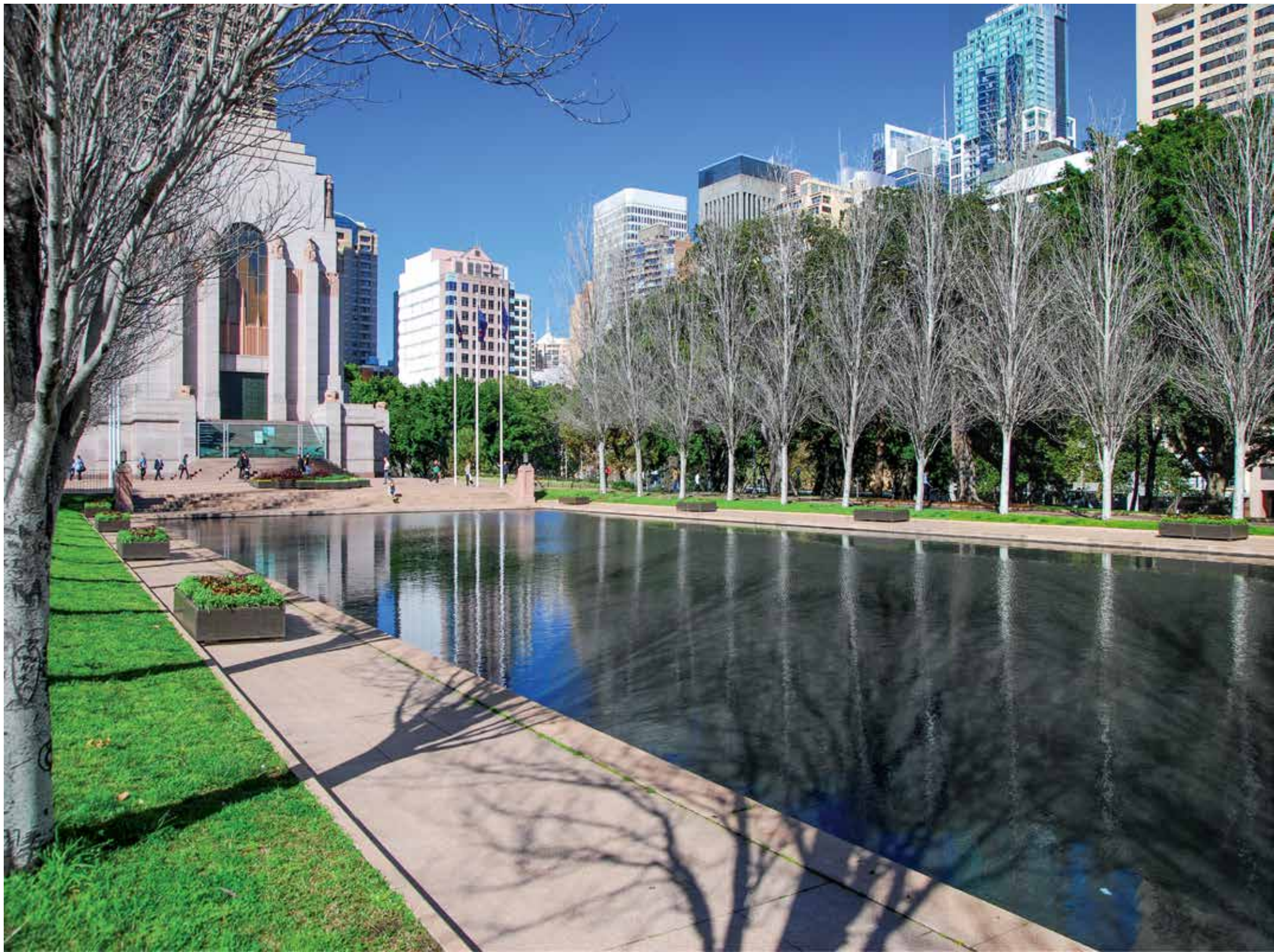
“the suite represents a leap forward in the use of modelling in the region”



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# Saving Water in Sydney's Parks

The City of Sydney has committed to ambitious water reduction targets for all aspects of operations as part of its 'Water Blueprint'. This presents a particular challenge to the parks team as they try to manage a large number of high-profile high-traffic areas. BMT WBM has been assisting the City of Sydney by investigating water use patterns at the largest water-consumption parks, and developing cost-effective ways to reduce water usage.

City of Sydney's project manager commented *"The qualifications, experience and professionalism of BMT WBM, and in particular Adam Jones, ensured that the contract was delivered on time and to a very high standard of service and reporting. The high level of communication and collaboration is also to be noted and any requirements or queries were addressed in a timely manner. It was a pleasure to partner with BMT WBM for this contract."*

The City already has an effective system for managing soil, turf and irrigation infrastructure – but keeping track of water system losses is complicated, particularly in the older parts of the CBD. Each site was assessed carefully - billing and asset records were used in conjunction with flow monitoring, site inspections and discussions with parks staff, contractors and Sydney Water. Significant opportunities were identified including incorrectly allocated water meters, some hidden leaks, and correction of anomalies in existing harvesting and irrigation control systems. Potential water savings are large and recommendations can be implemented easily and with short payback periods.



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# Byron Bay - Managing the Triple Threat



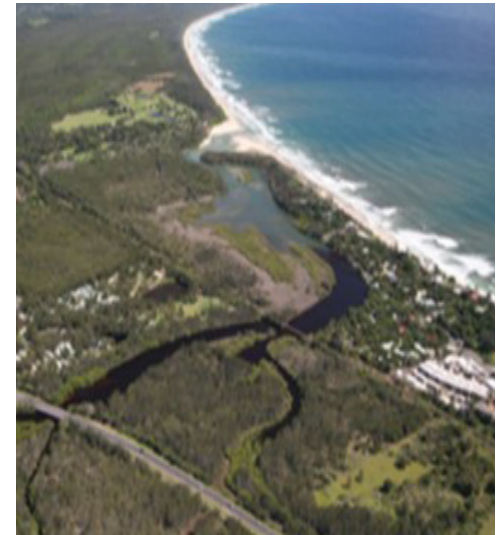
Byron Shire Council recently sought the assistance of BMT WBM to prepare a Floodplain Risk Management Study and Plan for the Belongil Creek catchment, which includes the town of Byron Bay in northern New South Wales.

The iconic town of Byron Bay is susceptible to flooding from intense short duration storms over the town, flooding from Belongil Creek and ocean storm tide events. Managing this “triple threat” of flooding in a complex coastal estuarine environment presented unique floodplain management opportunities and constraints for mitigating risks to life and property.

In Byron Bay, floodplain management measures had to be developed carefully against the backdrop of an active community who are keenly interested in water quality, flood resilience and long-term climate solutions.

The mitigation measures developed to manage flood risk were uniquely tailored to the Byron Bay community, aiming to reduce flooding for major and minor events, provide immunity against ocean storm tides, reduce the nuisance associated with stormwater flooding and remain adaptable to projected sea level rise.

The Floodplain Risk Management Study and Plan was adopted by Byron Shire Council in April 2015.



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## Sustainable Marine Estate Management

The NSW Government, through the newly formed NSW Marine Estate Management Authority (MEMA), is implementing a new approach to sustainable management of the NSW marine estate, wherein the estate is to be managed as a single continuous system.

The NSW Marine Estate includes all marine waters, estuaries and coastal areas, including the State's six marine parks. The new approach is designed to reduce social conflict and improve effective management of coastal and marine resources beyond existing marine park boundaries. A key focus of the initiative is maximising current and future economic, social and environmental benefits.

A risk management framework is being used to assess and prioritise the social, cultural, economic and environmental threats to community benefits derived from the entire NSW marine estate and to inform future management responses at varying scales. BMT WBM are facilitating the detailed evidence-based risk analysis phase at both the state-wide and Hawkesbury Shelf Marine Bioregion scales.

MEMA comprises representation from the four main government agencies involved in marine estate management and an independent Chair. An independent Marine Estate Expert Knowledge Panel (MEEKP) has also been appointed to provide expert advice spanning ecological, economic and social sciences. MEEKP provides advice to the Authority on any marine estate matters referred to it by the Authority.

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# What can Property Owners do about Flooding?

Managing urban water quality issues has been a focus over recent decades, however, significant water quantity (flooding) issues remain including nuisance and even property damage.

BMT WBM has been investigating urban water quantity and quality issues within the City of Port Phillip and the City of Stonnington, in Melbourne's eastern bayside suburbs. These investigations looked at incorporating on-lot green infrastructure, such as rainwater tanks and raingardens, into every property within a catchment, and examining the impact of this on flooding, as well as other benefits such as water quality.

A sophisticated 2D modelling framework was developed, capable of assessing high intensity rainfall events as well as the long term performance of the green infrastructure. Beneficial outcomes included changes in flood extents, reductions in property damage and reductions in nuisance impacts, such as loss of access and transport links.

Our results found that for rainwater tanks to provide flooding benefit they needed to have a high demand for water reuse - using rainwater tanks for on-lot irrigation only provided minimal benefit. Further, there were limited benefits from rainwater tanks in larger events such as the 1% AEP (1 in 100 year ARI) event.

On the other hand, we found that raingardens were relatively efficient in reducing flooding, although the land required for raingardens to be effective was significant.

Our results highlight there are potential opportunities for managing water quantity (flooding) and water quality at a lot-scale, but only if rainwater tanks are utilised for maximum reuse and gardens, lawns and other outdoor spaces are designed to be multi-functional, incorporating green infrastructure, such as raingardens and green roofs.



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# Australian Champion

In Adelaide last month, BMT WBM's very own Dr Daniel Botelho became an Australian champion by winning the 2015 Brazilian Jiu Jitsu AusCup in two categories: Superheavy Weight and Open Masters Blue Gi Divisions.

Brazilian Jiu Jitsu (BJJ) is a martial arts combat sport based primarily on ground techniques with the objective to submit your opponent via joint locks and chokeholds. BJJ requires focus, concentration, integrity, and respect to your opponents, peers and the community in general. BJJ also promotes a healthy lifestyle as part of its foundations and has also many attributes that can be readily applied to our consulting work, where quick rational thinking has to be used to confront stressful situations.

Well done, Dan! Good luck in the Pan Pacific Games to be held in Melbourne later this year!





# NEWS

## Coast and Ports 2015

BMT WBM was at the recent 2015 Coast and Ports Conference in New Zealand, one of the coastal industry's most significant conferences. This year's theme was *'Environomics; Environment and economics – can we have both?'*



BMT WBM's Senior Coastal Engineers, Matt Barnes and Ian Teakle, provided presentations on mitigating options for shoaling at the Mooloolaba Harbour Entrance and impacts of dredging in the Great Barrier Reef World Heritage Area, which were both well received. We were joined by our sister company BMT JFA who also presented a number of papers.

## FMA USA – California



Mat Roberts BMT WBM (London) and Chris Huxley (TUFLOW) were at another successful Floodplain Managers Association and ASFPM Arid Regions Conference in Rancho

Mirage, California this month. It was a great opportunity to network and share knowledge on our TUFLOW products and advances in floodplain management in general. The 2D modelling industry is gaining momentum within the USA and there were encouraging discussions during the 2D modelling forum, *'To 2D or not 2D'*, highlighted the industry's desire for modelling guidelines. For more information visit:

<http://www.tuflow.com/NewsRoom.aspx>

## Riversymposium 2015

BMT WBM took part in this year's Riversymposium in Brisbane, hosted by the International River Foundation (IRF). Following a similar theme to Coast and Ports, the conference focus was *"Healthy Rivers – Healthy Economies"*.



We delivered a special session *'Seconds to Seasons – Predicting The Many Faces Of Water Movement In The Brisbane River Basin'* while Tony Weber, BMT WBM Market Lead for Water Quality, ran a *'River Modelling'* workshop. Carrie Dearnley, Senior Flood Engineer, also presented on *'Bridging the Silos of Land Use Planning and Floodplain Management'*.

## Queensland Planning Institute of Australia (PIA) Conference (Townsville)

The annual Planning Institute of Australia (PIA) State Conference is the premier event for planning professionals across Queensland. Greg Fisk, BMT WBM's Business Development Manager, presented a paper on the *Cassowary Coast Foreshore Management Plan* (with project partner Buckley Vann) and was also a panellist on the conference workshop on how planning should respond to climate change and adaptation to sea level rise and extreme storm events. Carrie Dearnley, Senior Flood Engineer also presented at the conference.

## Other News

### New Appointments

It is with great pleasure that we can announce two new positions within the Water and Environment Group of BMT WBM.



Sharon Wallace has been appointed as Assistant Business Unit Manager for Queensland progressing from her role as Queensland Flood Group Manager. Sharon will join Craig Witt to manage BMT WBM's largest Water and Environment business unit.



Bill Syme, previously BMT WBM's National Practice Leader for Flooding, will take on the newly formed role of Business Unit Manager for Software. The new Software Business Unit has been established to enhance and grow internal and external software operations nationally and internationally.



### TUFLOW 2015 New Release is coming soon!

The 2015 TUFLOW new release is on track for October 2015. This release will see more features introduced including more functionality with GPU among other things. Stay informed by subscribing to the TUFLOW newsroom

<http://www.tuflow.com/NewsRoom.aspx>

### State President

David Kirby has taken over the role of Victorian AWA State President – Congratulations David!

Don't forget to join us on Facebook, Twitter and LinkedIn to stay informed on all the current news and activity!



**BMT WBM has a proven record in addressing today's engineering and environmental issues.**

**We aim to continue to enhance our services, capabilities and areas of application to meet the community's future development and environmental protection needs.**



**1** Number of BMT WBM offices in region

● BMT offices

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