

Queen's Birthday Honour for OMC International Founder and DUKC® innovator Dr Terry O'Brien

June 8, 2015

In today's Queen's Birthday Honours List, OMC International Executive Director Dr Terry O'Brien has been appointed a Member (AM) of the Order of Australia for "significant service to maritime engineering, to the development of innovative marine navigation equipment and to education".

Melbourne engineer Dr O'Brien, who is the recognised global leader in Under Keel Clearance (UKC) management, said his AM was "an unexpected honour".

"I also see it as recognition of OMC's dedicated and very talented staff who continue to ensure that DUKC® technology remains world's best practice in safe and efficient navigation for the global shipping industry," he said. "Their efforts have contributed to DUKC®'s unblemished 22-year safety record and I accept this AM on their behalf."

In November last year, Dr O'Brien was inducted into the Lloyd's List Australian Maritime Hall of Fame for having "a global impact" with the creation of his world-leading DUKC® e-Navigation technology. "Through the exercise of his own intellect, he has created a system that has already, and will in the future, save the resources, ports and shipping industries literally billions of dollars," his citation said.

While lecturing in engineering at Melbourne University, Dr O'Brien's fascination with waves, currents, ship motions and the challenge of creating a numerical method of modelling them led him to develop his ship motion model SPMS (Simulation Package for the Motion of Ships). Dr O'Brien first used this model after he was contacted by the then British Phosphate Commissioners to work on solutions for mooring the large phosphate ships in Nauru's particularly deep port and also for Christmas Island moorings.

In 1987, he left a distinguished 22-year academic career to further commercialise his model and establish O'Brien Maritime Consultants, now known as OMC. By 1993, Dr O'Brien had developed his innovation into a working DUKC® system which promised to make commercial shipping more efficient and safer. In 1993, he moved to Brisbane to support the installation of the first DUKC® system at Queensland's Hay Point coal terminal. Dr O'Brien's intellectual property still provides the core ship motion computations in all DUKC® products, including the latest web-based DUKC® Series 5 which offers state of the art enhancements such as dynamic port capacity modelling.

DUKC® is the only dynamic e-Navigation system worldwide that has proven capacity to predict in real-time the critical vertical component of navigation (what you can't see under the water) during the actual transit. In most cases, DUKC® allows large ships to go deeper than permitted by the traditionally conservative static rules, and therefore safely load more cargo and/or sail with wider tidal windows. DUKC® scientifically predicts how much UKC (the distance between the seabed and the bottom of the ship) these ships will have as they come down shallow port approach channels. It allows the shipping of more cargo, more safely, more often.



Under very favourable conditions, DUKC® can allow large ships to safely sail up to 1m deeper – allowing them to carry more than 15,000 extra tonnes of iron ore or coal.

OMC's customised DUKC® systems are already operating in most major Australian ports, and in New Zealand, Europe and North America. Almost all of the iron ore and most of the coal exported from Australia are shipped out under DUKC® advice. The Australian Maritime Safety Authority (AMSA) was the first client to use OMC's web-based DUKC® Series 5 to ensure safer shipping through the ecologically sensitive international waters of Torres Strait and a customised web-based DUKC® Series 5 system is being deployed in Canada's St Lawrence River (one of the world's busiest inland waterways) from Montreal to Quebec City.

As further recognition of OMC's maritime engineering expertise, OMC partnered with Melbourne's Swinburne University of Technology in 2009 to teach DUKC® technology case studies and industry applications each year as part of a postgraduate port engineering unit.

"Students can learn about the limitations of traditional static UKC management and be introduced to the DUKC® paradigm shift in UKC management," Dr O'Brien said. "Some of these students will eventually move on to work in ports around the world and will help shape the future of the maritime industry."

Interestingly, Dr O'Brien, who has spent many years advising international working groups PIANC and IALA which set world standards for ship navigation and channel design, was himself mentored by industry leaders early on in his career, including during his time as a Doctoral student at Imperial College of Science and Technology in London.

After returning to an academic appointment in Australia, Dr O'Brien was then awarded a prestigious Harkness Fellowship of the Commonwealth Fund for potential leaders in their field, undertaking research at the Massachusetts Institute of Technology (MIT) for two years. Other university sabbaticals were spent at the University of Arizona, the National Research Institute of Oceanography of the CSIR in South Africa and at the Danish Hydraulic Institute.

Due to the company's strong focus on research, OMC continues to develop a specialist maritime engineering workforce and to bring new innovative products to market. Under the direction of Dr O'Brien and his CEO son Peter O'Brien, who is also an engineer, their family-owned business now employs more than 40 maritime and software engineers. OMC continues to be the only specialist maritime firm in the world whose core focus is providing proven e- Navigation technology for determining and managing real-time UKC in depth-restricted waterways, typically approach channels to ports.

"I strongly believe that DUKC® will eventually become an industry standard in safely managing UKC," Dr O'Brien said. "As ships continue getting larger, UKC limits are critical and this is why OMC's proven real-time DUKC® technology – with its unblemished safety record - is increasingly becoming an essential decision support and risk mitigation tool for ports and waterways around the world."

Other award highlights:

* **On 6 May 2015**, at an awards ceremony dinner in London, OMC is named Runner-Up in the 2015 Seatrade 'Innovation in Ship Operations' Award for its web-based DUKC® Series 5 system.

* **On 19 November 2012**, at an awards ceremony dinner in Hamburg, OMC wins the 2012 IBJ 'Innovative Technology' Award for ship motion measurement instrument OMC iHeave®.

* **On 14 June 2012**, at an awards ceremony dinner in London, OMC's DUKC® Series 5 system is announced 1st Runner-Up 'Engineering Excellence' in the 2012 IHS Safety at Sea Awards.

* **On 15 November 2010**, at an awards ceremony dinner in London, Dr O'Brien is announced 'Personality of the Year' at the 2010 International Bulk Journal (IBJ) Awards. * In June 2010, in the Queen's Birthday Honours List, Dr O'Brien is awarded a Medal of the Order of Australia (OAM) for services to the maritime transport industry.

* **On 24 November 2009**, at an awards ceremony dinner in Sydney, OMC wins the Lloyd's List DCN Maritime Services Award "for its work in developing under keel clearance systems, which it has taken to international markets". Judges praise OMC for being "an outstanding leader in its field".

* **In June 2009**, OMC wins the 'Marine Civil Engineering and Construction' category of the Seawork 2009 Innovation Showcase Awards in the UK for real-time DUKC® monitoring.