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DUKC® innovator Dr Terry O'Brien OAM is inducted into Australian Maritime Hall of Fame

Melbourne engineer Dr Terry O'Brien OAM, who is the recognised world expert in Under Keel Clearance (UKC) management, was last night inducted into the Australian Maritime Hall of Fame at a gala awards dinner in Sydney.

In front of more than 500 guests at this year's Lloyds List Australia 19th Australian Shipping Awards, OMC International (OMC) Founder and Executive Director Dr O'Brien accepted the shipping industry's top accolade for "making an outstanding contribution to Australia's maritime industry" during an impressive career spanning more than 50 years.

"I am deeply honoured and humbled to be inducted into the Australian Maritime Hall of Fame in front of my family and also OMC staff, who are like family because we are a family-owned business," said Dr O'Brien who was born in Horsham and grew up on a small farm in Penshurst in Victoria's Western District, where he still owns property. After leaving school Dr O'Brien returned to Horsham to work for seven years as a Wimmera Shire engineer and then moved to the city to study at Melbourne University.

"Special thanks must go to my wife Pauline, who has been deeply involved with OMC since the early days, providing positive encouragement to promote the DUKC® story. She has visited more ports than most people! In accepting this award, I also recognise the tireless efforts by my engineering son Peter who, as CEO, now runs our day-to-day operations, and I acknowledge OMC clients such as AMSA (Australian Maritime Safety Authority).

"We're very proud of our team, and very proud of our technology, bringing the 'good idea' I started with in 1993 at Hay Point, thanks to a very special friendship with Brad Fish, into a world-class navigation system.

"We are now on the brink of an exciting future, particularly with a Free Trade Agreement with China which is a wonderful opportunity for Australian businesses to prosper and potentially opens up new markets for DUKC®. Nevertheless, OMC faces many challenges ahead, including the protection of intellectual property which is a concern for companies like us who put significant time and money into R&D. Federal Government Start Up grants have helped OMC to develop and support DUKC® systems around the world.

"As OMC embarks on a new era, we will still go slowly as we have to always ensure that everything we do is safe. We try to push the envelope but safety will always be our number one priority."

Dr O'Brien, a Harkness Fellow, is the innovator of his company's DUKC[®] technology and is the world expert in accurately calculating (to the cm) how close to the seabed a ship can sail without touching the bottom, which is the critical UKC factor. Science-based DUKC[®] technology is so accurate that, under extreme weather conditions, a 250,000 tonne bulk carrier could negotiate a channel within a metre's clearance to the seabed.

It 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 'guesswork' static rules, and therefore safely load more cargo and/or sail with wider tidal windows.

OMC's customised DUKC[®] systems are now operational in some of the largest bulk, container and multi-cargo ports in the world, including the Pilbara iron ore ports in north Western Australia, and in some of the world's most important waterways, including the ecologically sensitive waters of Torres Strait and a system is currently being deployed in the St Lawrence River (one of the world's busiest inland waterways) from Montreal to Quebec City in Canada.

Dr O'Brien's innovative 'good idea' was seeded during the 60s when he worked on a solution for the deep water mooring of the ships loading phosphate ore in the deep waters of the Pacific island of Nauru, and Christmas Island. At the time, he was lecturing at Melbourne University where his 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). This intellectual property still provides the core ship motion computations in all DUKC[®] products.

Realising there was a niche business market, and showing a rare entrepreneurial flair for a scholar, Dr O'Brien left academia after a distinguished 22-year career to set up OMC in 1987 – working from the former stables at the rear of the family home - to further develop his model into a working DUKC[®] system for commercial shipping.

By 1992 Dr O'Brien had, with the support of Ports Corporation of Queensland (now known as North Queensland Bulk Ports Corporation), developed his ship motion model sufficiently for its installation and trialling in Queensland's Hay Point coal terminal. For this 18-month period, Dr O'Brien, a father of six, set up office in Brisbane – and relocated his wife and their youngest son from their Melbourne house into a Brisbane flat. One of his sons Peter, now CEO, worked with him in Brisbane during part of this time, witnessing the early development of the DUKC[®] system as part of his postgraduate engineering training. Peter later worked interstate for two major consulting engineering firms for several years before moving to the Netherlands to complete a Master of Science Degree (Distinction) in Port and Coastal Engineering. (He rejoined OMC in 2000).

OMC's first DUKC[®] system was fully implemented in Hay Point in 1993. In 1994 Dr O'Brien returned to Melbourne and continued working from the family home for a few months and successfully installed the second DUKC[®] system in the Port of Fremantle (initially for BP

tankers), before opening his first office in nearby Hawthorn with a staff of five. They faced the challenging task of 'rolling out' DUKC[®] technology to Port Hedland Port Authority and Dampier in 1995, and Brisbane and Bunbury in 1996. OMC established two further offices in Abbotsford as the staff grew, including the current headquarters at 13 Harper St.

Dr O'Brien was awarded an Order of Australia Medal (OAM) in the Queen's Birthday Honours List in 2010 for services to the maritime transport industry and has also been involved for many years with international working groups – PIANC and IALA - which set world standards for ship navigation and channel design.

PIANC is widely regarded as the premier world authority on the design and operation of port structures and facilities. Working Group 49 addressed international guidelines and standards for channel design and was tasked with updating the well-known PIANC international guidelines for channel design (WG 30 report), taking account of the increase in ship size since publication of that report in 1997. The new guidelines were published in late 2013 and Dr O'Brien was responsible for the channel design components relevant to UKC.

Working Group 54, which Dr O'Brien was personally invited to chair, addressed the use of hydro/meteo data for port operations, especially real-time determination of tidal windows for shipping channels. It is a newer area of interest for PIANC and relates to the very important topic of measurement, forecasting and application of hydro/meteo data for UKC management tools such as DUKC[®] as well as for the safe operation of moored ships and the berthing/unberthing of ships. A report on Working Group 54's findings, looking into the use of hydro/meteo information to optimise safe port access, has also now been published.

In both working groups, Dr O'Brien was the only Australian amongst the international experts who met together for several years, usually in Europe. There is no shortage of Frequent Flyer points!

Terry and his wife Pauline, who has a Masters in Educational Psychology, are parents to three medical specialists, a barrister/politician, an engineer and their only daughter is a neuropsychologist. Their six children were exposed to travel at a young age as Dr O'Brien took sabbaticals overseas from Melbourne University with his family in tow. Again, he chose to travel by ship, for much the same cost as by plane back then, so he could enjoy quality family time on the long sea voyages. His children quickly learnt which side of the boat was starboard!

Meanwhile, Dr O'Brien's 20 grandchildren are now learning quickly that their Grandfather is also very passionate about cricket, even the family backyard version, and that only one son has ever beaten his golf score – and that his hope is to see his DUKC[®] become a standard safety requirement for UKC management around the world.

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