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## Port Hedland Records

Amidst the COVID19 global pandemic, Australia's ports have demonstrated their resilience and capability to adapt and innovate. The Port of Port Hedland, the world's largest bulk export port, recently achieved a record throughput of 538.1Mt. This represents a 5% increase on the previous year. Iron ore exports totalled a record 531.5Mt, with 51.7Mt in June, marking the first time more than 50Mt throughput has been achieved in a single month.

Managing this volume through a tidally constrained, swell exposed, 42 km uni-directional channel takes a dedicated team of highly trained individuals, utilising the latest innovations and decision support technologies.

These tools include OMC International's suite of digital risk management and port optimisation solutions including:

- Dynamic Under Keel Clearance System (DUKCC®) which maximises the sailing draft of every vessel whilst ensuring safety.
- MetOcean processing to ensure the highest quality, real-time data feeds.
- Dynamic Chart Overlays, integrated with the Pilots Portable Units to provide real-time monitoring and alerting of the vessels' speed, position, and in-transit UKC.
- Dynamic Port Capacity Model (DPCM®), a discrete event simulation model that has allowed the port to increase its declared capacity from 495Mtp to 617Mtpa, as well as evaluate the performance of various future development and operational scenarios.
- Dynamic moored vessel and passing ship interaction analysis.
- Dredge optimisation analysis to minimise dredging volumes and costs.
- Integration of DUKCC® with the Port's ship simulators, enabling immersive and realistic interaction between pilots and Vessel Traffic Service Officers (VTSOs) during emergency scenario training exercises.

Earlier this year, OMC also developed for the Port of Port Hedland a custom tool to assist the VTSOs to quickly evaluate shipping schedules to ensure compliance with port protocols. With up to 10 vessels sailing on a single tide, the ability to update schedules to accommodate last minutes changes is critical, and the latest development by OMC helps to achieve this.

Increasing throughput and enhancing safety are not the only benefits of the DUKCC® suite. It is estimated that by optimising the sailing draft of each iron ore vessel from the Pilbara, the annual reduction in fuel costs for the shippers equates to USD\$130 million. Furthermore, the associated reduction in CO<sub>2</sub> emissions is approximately 1.2 million tonnes. As the shipping industry moves towards reducing emissions, optimisation technology such as DUKCC® is already playing a significant role.

This year marks the 25<sup>th</sup> anniversary since the implementation of DUKCC® at the Port of Port Hedland. In that inaugural year, the port also celebrated a record annual throughput of 60 million tonnes.

Twenty-five years and nearly five and a half billion tonnes later the growth in the Port, and the advancement in the technologies that support its safe and efficient operations, is remarkable.