

**DR KIERAN DODWORTH**

BEng, PhD, CEng, FRINA, MIMarEST

**Director of Naval Architecture**

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Dr Kieran Dodworth became Director of Naval Architecture in 2019. He was employed in the offshore industry prior to joining Brookes Bell, working for several consultancy firms based in the UK in the area of non-linear dynamics of offshore structures. He studied for a PhD in damaged vessel hydrodynamics at the University of Strathclyde which he achieved in 2000. His undergraduate degree was in Naval Architecture and Small crafts from the University of Strathclyde which was completed in 1995. His areas of expertise are in aero/hydrodynamics and marine structures and he is responsible for the development and technical output of the company in these areas. He has also carried out a considerable body of work in the area of seakeeping and vessel dynamics and is one of the company's specialists in this field. He has advised clients on a number of important legal cases and given evidence in the Scottish High Court, Oslo City court and many times in arbitration under various jurisdictions.

**Academic Qualifications**

Fellow of the Royal Institute of Naval Architects

Member of Institute of Marine Engineers Scientists and Technologists (IMarEST)

PhD "The Application of Potential Flow Theory to Damaged Hull Dynamics"  
*University of Strathclyde*

BEng. Hons (1<sup>st</sup> Class) Naval Architecture and Small Crafts  
*University of Strathclyde*

**Previous Employment History**

Safety at Sea Limited, Glasgow, UK

Responsible for the running of the company as part of the board of directors. Leading specialist in hydrodynamic and ship structures responsible for development of business and services in this area. Responsible for structural projects in subsea engineering, marine operations and ship design. Acted as expert witness on commercial disputes and criminal cases. Advisor to shipyards and ship owners in aero and hydrodynamic projects including development of hull forms and superstructure designs. Overseer on academic projects towards analysis of damaged hulls following collision.

MCS International, Aberdeen, UK - Riser Engineer

Responsible for riser design studies for various North Sea and West Africa developments. Responsible for local structural analysis of risers and development of company capability in this area. Involved in several riser failure investigations on behalf of clients.

Noble Denton Europe, London, UK - Structural Engineer, General Engineering

Engineer working within general engineering department specialising in site specific assessment of jack-up rig deployments. Carried out structural and sea-keeping calculations for dry-towage of jack-up rigs. Development of non-linear finite element software for jack-up analysis including structure soil interaction models.

**Naval Architecture and Consultancy Experience**

- Various small motor and sailing yacht investigations including structural failures, mooring failures and personal injuries.
- Structural strength calculations for Jack up rigs in dry towage.
- Jack-up rig local and global analysis to American Petroleum Institute Guidelines.
- Jack-up rig canting mechanism structural strength.
- Jack-up rig global analysis software development for soil fixity calculation.
- Jack-up pinion and gear box failures. Analysis of strength and critical defect sizes.
- Fishing vessel grounding and partial capsize investigation for hull & machinery insurer.
- Large sailing yacht Fibre Reinforced Plastic (FRP) keel failure.
- Advising on naval architecture aspects of superyacht concept design.
- Bulk carrier residual strength assessment following side damage for arbitration hearing.
- Container vessel deformation in drydock investigation.
- Handymax bulk carrier bottom damage following grounding.
- Grounding of tanker in Suez Canal.
- Capsizing of dumb barge during tow.
- Capsizing of passenger ferry.

- Salvage of grounded bulk carrier.
- Engine room flooding and foundering of bulk carrier.
- Engine room flooding of Handymax bulk carrier.
- AHV capsize while handling anchors.
- Container ship and bulk carrier rudder fatigue and bearing wear studies.
- Failure of container ship thruster and resultant flooding.
- Survey of damage and repair works to reinforced concrete pier structure.
- Investigation into total hull failure of tanker for hull & machinery insurer.
- Analysis of failed lashing gear on general cargo vessel.
- Lashing failures on car carrier.
- Partial capsize of car-carrier and cargo shift.
- Container stack collapses and lashing equipment failures.
- Analysis of punctured fuel tank and resulting oil outflow
- Investigation of hull collapse of large ore carrier.
- Investigation of hull failure of large container ship
- Investigation of burst risers in FPSO drag chain.
- Investigation of dropped water riser.
- Analysis of ranging incidents and ship interaction.
- Riser configuration design of flexible and catenary risers.
- Structural analysis of drill string in top-tensioned riser.
- Design of riser system for semi-submersible.
- Installation procedure of riser system on behalf of construction yard.
- FEED study of dry-tree well head semi-submersible on behalf of construction yard.
- Vortex induced vibration studies on fins and crane structures.
- Design and analysis of cruise-liner superstructures for optimal aerodynamics.
- Hull form modifications including bulbous bows, sponsons and ducktails for RoPax vessels.
- Performance disputes for new buildings.
- New hull form design supporting shipyards and owners on cruiseliners, river cruise vessels, fishing vessels, river cargo vessels and super yachts
- Concept design and analysis of wave pools for theme parks.
- Support of National marine authorities in development of safety policy in fishing boat stability, survivability testing and car-deck drainage.
- Compliance of container lashing equipment with standards on behalf of manufacturer
- Flooding of bulk carrier cargo holds due to rough weather.
- Consumption disputes for chartered vessels.
- Vessel grounding incidents including structural strength assessments and ship manoeuvring simulations.
- Coverage disputes for total loss cases.

**Publications**

- Ganea, B.; Dodworth, K. – Propellor overload factors for the direct power method, The Naval Architect, September 2017, pp 44/47.
- Ganea, B.; Dodworth, K. – A power correction method for speed-power sea trials data analysis, The Naval Architect, July/August 2018, pp 34/36.