RINA UAE Branch

THE ROYAL INSTITUTION OF NAVAL ARCHITECTS

Technical Paper Presentation

By

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On

"The Effect of Berthed Ship Size and Berth Occupancy on Berthed Ship - Passing Ship Interaction Forces and Moments"

Abstract:

With the need to operate more efficiently and the increase in demands for goods and materials, the size, and number of ships operating in our ports is increasing. With this increase in vessel size and congestion, and the associated increase in blockage around the manoeuvring ships, the study of ship-to-ship interaction becomes increasingly relevant to the design and operation of ports.

The paper deals with the effect of berthed ship size and berth occupancy arrangement on the interaction forces and moments induced by a passing ship in shallow water. A series of scale model experiments were conducted with the berthed ship represented by a model constrained in surge, sway and yaw to enable the measurement of the surge force, sway force and yaw moment. The berthed ship size, berthed ship locations and passing ship speed were varied during the test program. A selection of the results is presented, and the influence of the important parameters on the forces and moment on the berthed ship are discussed. The influence of the berthed ship size and the berth occupancy on the magnitude of the peaks of the interaction forces and moments was quantified, and results presented. Selected experimental time domain trace results are compared to those obtained using an empirical prediction technique which was modified to match the magnitude of the experimental forces and moments.

The paper is co-authored by **Shaun Denehy, Jonathan Duffy, Dev Ranmuthugala** of the National Centre for Marine Engineering and Hydrodynamics, Australian Maritime College, Launceston, Australia **and Martin Renilson,** Dean, Maritime at Higher Colleges of Technology, Abu Dhabi.

Keywords: Berthed ship-passing ship interaction, physical scale model experiments.

Presenter Profile:

Shaun Denehy, Research Engineer at National Centre for Maritime Engineering and Hydrodynamics, completed his Bachelors in Naval Architecture from Australian Maritime College in 2009. He has since enrolled in the Masters of Philosophy by research, 'Developing a Desktop Prediction of Berthed Ship-Passing Ship Interaction Forces and Moments', Australian Maritime College. He is an Associate Member of The Royal Institution of Naval Architects.

Mr. Denehy has been involved in consulting projects for Numerical prediction of mooring line loads for passing ship induced motions, Experimental model design for investigation of tunnel height on slamming of high speed catamarans and berthed ship-passing ship interaction study for a large Australian port.

Date & Time - Monday, 24 September 2012, 6.30 PM to 8.30 PM.
Venue - Sun Room, 1st Floor, Dhow Palace Hotel, Bur Dubai (Location map attached).
(Free valet parking facility available).

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Location Map for Dhow Palace Hotel, Bur Dubai
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