



THE INSTITUTION OF ENGINEERS, MALAYSIA

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TALK ON

“THE IMPACT OF WAVE BLOCKING FROM SHIP HULLS ON THE STABILITY OF TANJUNG PIAI COASTLINE”

(Organised by Marine Engineering and Naval Architecture Technical Division, IEM)

BEM Approved CPD/PDP: 2 Hours

Ref No: IEM15/HQ/115/T

Date : 14th May 2015 (Thursday)
Time : 5.30 pm to 7.30 pm (Refreshments will be served at 5.00 pm)
Venue : TUS and C&S Lecture Rooms, 2nd Floor, Wisma IEM, Petaling Jaya
Speaker : Professor Jacob Hjelmager Jensen

SYNOPSIS

Tanjung Piai, located on the southern tip of west Malaysia in Johor, is subject to critical coastal erosion on the eastern side of the headland. Consequently, severe loss of protected mangrove coastline has been observed over the past 20 years.

Various triggers for this erosion have been proposed, all being linked to the extensive developments of the region and the increase in marine activities in the waters of Johor Strait. In this study, impacts on the regional (ambient) wave field, by the presence of ships in the Strait of Johor, are investigated. Waves are partially reflected off the hulls of the ships, and the extensive presence of ships in the Strait of Johor thus manifests itself as a blocking of the ambient wave field, resulting in a wave climate near Tanjung Piai that depend on the congestion of ships. The integrated effect of the ship hull induced wave reflections on the ambient wave field is evaluated by using the numerical modelling tool MIKE 21.

Information on the number, the positions and the sizes of the ships are determined from satellite images. It is found that the impacts of ship hull-induced wave reflections on the nearshore wave field at Tanjung Piai are significant, and, in particular, that the impacts on nearshore wave periods are pronounced. The MIKE 21 model predicts significant reductions in the wave periods at Tanjung Piai when including the ships. These changes in the wave periods can explain the changes to the coastal morphology observed at Tanjung Piai, including the coastal erosion, from the notion that the longer waves in the wave spectrum tend to push sediment in the coastal profile onshore, whereas the shorter waves moves sediment seaward.

BIODATA OF SPEAKER

Professor Jacob Hjelmager Jensen has 17 years of experience in coastal and marine engineering and is an expert in the areas of coastal and marine hydraulics, coastal morphology and sedimentation. He graduated from the Technical University of Denmark with Master of Science in Civil Engineering in 1995 and later completed his Ph.D. in computational fluid dynamics (CFD) and sediment transport modeling in 1998. Being a specialist in CFD modelling, he has been involved in the development and application of the advanced mathematical modelling tool for hydrodynamical problems.

Professor Jensen has been working as a Consultant for DHI Water & Environment (formerly Danish Hydraulic Institute) and as a Professor at Technical University of Denmark. He worked in Malaysia for three years before leaving for Denmark in 2010. Since his relocation to Kuala Lumpur in January 2015, he serves as the Technical Director for DHI Water & Environment Malaysia and Singapore.

Capt. Ir. Hj. Rani Mohd Raji (Rtd)

Chairman

Marine Engineering and Naval Architecture Technical Division, IEM

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- Preferential admission to talk shall be accorded to IEM members (pre-registration and online registration are NOT required). (telephone and/or fax reservation will NOT be entertained)
- **Non members** may also attend the talk but will be charged a registration fee of **RM50** and an administrative fee of **RM15**.
- For affiliate members, there will be no registration fee. However, they are requested to produce their membership card as proof of membership. For the list of affiliates, please refer www.myiem.org.my/content/memorandum_of_understanding-469.aspx.
- Limited seats are available on a "first come first served" basis (maximum 110 participants).
- IEM members are required to produce your membership cards for confirmation of attendance (CPD purpose).
- Latecomers will not be allowed to enter if the lecture hall is full nor be entitled to CPD.

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- All contributions will be deeply appreciated by IEM.
- Students are however exempted.

Your understanding is greatly appreciated.

CPD/PDP HOURS CONFIRMATION

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