

## **Hydrodynamic load on coupled “ship” – “breast dolphin” system using a conformal mapping approach**

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When a ship docks at a breast dolphin structure, such as a single pile flexible dolphin, one question remains unanswered: How do the hydrodynamic loads of the ships contribute to the deformation of the dolphins? One approach is the application of the potential flow theory and the section-by-section approximation of the ship geometry. In the literature, the method is usually referred to as “2.5D flow theory”. The hydrodynamic loads of each section can now be calculated using the conformal mapping approach from circular to ship cross-section geometry. The proposed method is an improvement over Ursell’s method, which uses a circular cylinder. We will show how a method is derived and applied to the case of a tanker berthing at the liquid jetty in the port of Koper. The results will discuss the dynamics of a coupled system.