

SINKAGE AND TRIM OF SERIES 60 HULL AT FINITE DEPTH OF WATER

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This paper presents a potential based boundary element method for solving a nonlinear free surface problem with the effects of sinkage and trim at the finite depth of water. The free surface boundary condition is linearized by the systematic method of perturbation in terms of a small parameter up to second order. The sinkage and trim of a ship are computed by equating the vertical force and pitching moment to the hydrostatic restoring force and moment. The present method has been applied to the Series 60 and is found to be efficient for evaluating the flow field, wave pattern and wave-making resistance at the finite depth of water. The second order solution improves the first order solution and the present method with the second order solution can be adopted as a powerful tool for the hydrodynamic analysis of the thin ship at the finite depth of water.

Key words: finite depth, wave making resistance, potential based boundary element method, perturbation method.

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