

An Approximate Solution for Diffraction-Induced Shoreline in a Double Headland and Comparison with Field Measurement

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Abstract

In past decades beach erosion has been remarkably severe along coasts of different parts of the world, so that distinct types of coastal protective measures have been implemented; seawalls, wave-dissipating breakwaters, groins, artificial headlands or detached breakwaters have been constructed.

In recent years, at Bongpeong beach, South Korea, an artificial headland was constructed to stop the beach erosion. The structure resulted in severe beach erosion of the adjoining places. In order to stop the consequences, another headland was constructed at some distance, but the construction of double headland did not prevent the erosion significantly.

This paper focuses on the accurate design of the artificial double headland construction. The study presents the application of equilibrium shoreline empirical formula of parabolic type to estimate the equilibrium stages of the artificial double headland beaches and an analytic solution is presented in the present study. The research has solved the empirical formula of parabolic type to find the optimum result by considering the essential parameters that influence the erosion after the construction of double headland.

Keywords : Beach erosion, Equilibrium shoreline, Parabolic type

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