
JOURNAL OF COASTAL AND HYDRAULIC STRUCTURES

Review and rebuttal of the paper

Submerged low-crested structures in front of coastal structures

Marcel R.A. van Gent

Editor handling the paper: Miguel Esteban

JOURNAL OF COASTAL AND HYDRAULIC STRUCTURES

Manuscript title: Submerged low-crested structures in front of coastal structures

Reviewers' comments and reply by author to Reviewers' comments ([Reply by author inserted in blue](#))

[Reply: The author wants to thank the reviewers for their time and evaluations.](#)

Reviewer #1

This research investigated the structure-induced wave set-up caused by submerged low-crested structures (LCS) in front of coastal structures through a series of physical experiments. The authors have proposed new empirical equations to quantify the structure-induced wave set-up delta for both permeable and impermeable LCS. The effects of the distance of two structures and wave transmission were also investigated. Furthermore, for the possible effect of structure-induced wave set-up on overtopping discharge at a rubble mound breakwater, the authors verified that a simple correction of adding delta to the freeboard could adequately estimate the overtopping discharge under the experimental situations.

The experimental data were extensive, collected in an organized manner, and proposed equations were found to support and extend previous ones, with their accuracy thoroughly verified.

The findings presented in this study are expected to make valuable contributions to the field of coastal engineering and thus are suitable for publication in this journal. The manuscript is also well-written and, therefore, the reviewer would recommend ACCEPT.

[Reply: Thank you for your positive comments and evaluation.](#)

Although questions about physical/hydrodynamic interpretations of structure-induced wave set-up still linger, the reviewer is optimistic that further studies will address them. In my opinion, the permeability of LCS would have an influence on the magnitude of delta or possibly its spatial gradient (i.e. the distance between structures might have effects).

[Reply: Thank you for your thoughts. I agree that the permeability, also other permeabilities than those tested, is likely to affect the magnitude of delta \(i.e. the structure induced set-up\), as discussed in the discussion section \(Section 4\).](#)

Small remarks:

- If these experiments modeled specific locations or structures, please specify the scale between the model and prototypes.

[Reply text added on P4: The physical model in the wave flume is not a scale model of an actual project. Applications of the test results are expected to be for structures in the range of about 10 to 50 times larger in reality than the tested models. Furthermore, results are expected to be used to design future model tests with structures of similar sizes.](#)

- P5-L14 "inshore"?

[Reply: the word inshore has been added in a few sentences to avoid potential confusion.](#)

Reviewer #2

This study presents empirical equations for the structure-induced wave set-up behind submerged low-crested structures, derived from hydraulic model experiments under a wide range of conditions.

The experimental conditions and methods are well designed and all necessary information is provided in the paper. The data analysis methods are also appropriate, and the validity of the derived equations is supported by the data.

The findings on the hydraulic characteristics of the submerged low-crested structures obtained in this study are useful and will be of interest to many readers.

Therefore, the reviewer recommends that this manuscript be accepted for the Journal of Coastal and Hydraulic Structures.

[Reply: Thank you for your positive comments and evaluation.](#)