

Influence of precast concrete armor units on coastal erosion

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We have conducted microtopography measurements at Samejima coast continuously since July 2013. According to our survey data, the average altitude of the coast is decreasing gradually with time, indicating that coastal erosion is occurring. Precast concrete armor units have been placed throughout Enshu-nada as a measure against coastal erosion, however it remains unclear to what degree they are effective in preventing erosion. We conducted a study to determine the effectiveness of the precast concrete armor units.

The methods are as follow; we took pre- and post-storm microtopography measurements of the coast line around a precast concrete armor unit. In addition, we compared past airscapes of the Samejima coast to observe coastal erosion overtime. We also looked at aerial photographs of how waves moved around the concrete armor units. Finally, we conducted trench investigations on the sandy area around the unit. The tendency of sand to accumulate in certain spots was analyzed using the difference in the mean particle diameter of various spots.

As a result, we concluded that sand is accumulated on the land side of the precast concrete armor units after storms. In addition, we can observe better results with the use of multiple precast concrete armor units than a single unit. We made it clear that waves go around the precast concrete armor units. Finally, as the distance between the unit and the water line increases, the amount of minute sand can deposit also increase.

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