

Cockle Shell As An Alternative Construction Material For Artificial Reef

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Abstract

Cockle shell is abundantly available in Malaysia as a by-product from seafood industry. This waste is not yet exploited in other applications except that it has been used in small-scaled craft production. The mineral composition of the cockle shell which consist of Calcium (Ca), Carbon (C), Magnesium (Mg) and Silica (Si) which is similar to that sand, gravel and cement suggest its potential as an alternative material in fabricating artificial reef. This research is an attempt to use cockle shell as part of the aggregate in concrete composition for artificial reef fabrication. The result of the study revealed that the introduction of cockle shell in concrete improve some of the properties of the artificial reef; compared to those without the shell. The utilization of cockle shell in the artificial reef showed no significant effect to seawater in terms of salinity and temperature, although it increased alkalinity of the water. Integration of this material on the reef surface provides texture to expedite settlement of marine organism. Furthermore, through observation, fish is more attracted to cockle shell reef rather than the one without it.

Keywords:

cockle shell, artificial reef, waste material, artificial reef properties, cockle shell composition