

Assessing the role of coastal characteristics in erosional process of rocky shores by boulder quarrying.

Joanna Causon Deguara and Ritienne Gauci

University of Malta, Geography Department, Malta (joanna.causon-deguara@um.edu.mt)

Rocky coasts are considered as relatively stable coastlines, subject to erosional processes that change the landscape over long periods of time. Block quarrying is one such process, occurring when hydraulic pressure from wave impact dislodges boulders from within the outcropping bedrock. These dislodged boulders can be either deposited inland or dragged seaward by further wave action. This process can be evidenced from boulder deposits on the coast, as well as sockets and detachment scarps that are identified at the shoreline and in the backshore.

This study seeks to identify the role of attributes such as aspect, geological structure and water depth have on erosion of rocky coasts through boulder quarrying processes. This is being done through observation of coastline morphology and an analysis of boulder accumulations and erosional features identified on a 3km stretch of rocky shore.

The study area is situated on the SE coast of the Island of Malta (Central Mediterranean). The coastline being analysed generally trends NW – SE and consists of a series of limestone beds that dip slightly towards the NE. The boulder deposits observed along the site vary in size, quantity and position with respect to the shoreline. Whilst some areas exhibit large boulder accumulations, other areas are distinguished by the complete absence of such deposits. Taking into consideration the wave climate, the variable size, quantity and distribution of boulder accumulations observed along the site may indicate that geological structure and aspect play an important role in boulder dislodgment by wave action.

Key words: rock coast, boulder quarrying, erosional process, Malta