

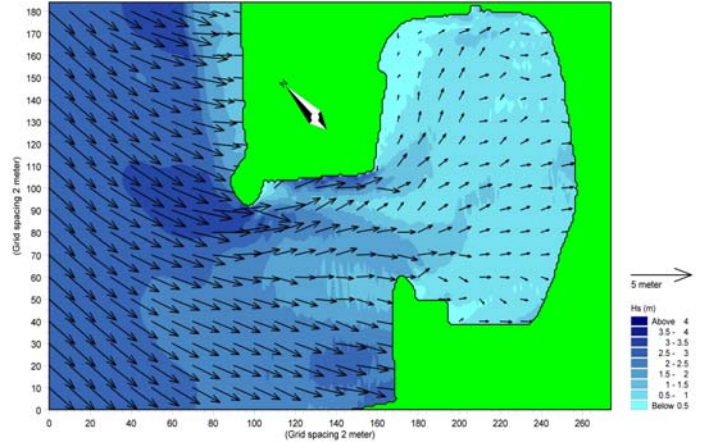
Goldeneye Development, Jamaica

coastal engineering



Coastal Systems International, Inc. conducted site surveys and a coastal engineering analysis for the proposed exclusive island development in Oracabessa Bay, located on the north coast of Jamaica. Surveys were conducted of the shoreline, canal, bay and nearshore reefs to evaluate coastal processes and to develop coastal engineering criteria for the shoreline stabilization. Hydrographic surveys and tide measurements were performed. Design storm surges were estimated and wave data was obtained from satellite measurements. A statistical analysis was performed to provide deep water wave design criteria for established return periods. Numerical modeling was performed to simulate deep water waves propagating to the project area utilizing the MIKE 21 PMS wave model. Wave conditions were developed for the shoreline stabilization design. In addition, a flushing analysis was performed for the canal behind the adjacent Goldeneye Resort utilizing the MIKE 21 HD numerical model to simulate tidal hydrodynamics. A flushing culvert was sized to improve water quality for the canal ecosystem. A comprehensive coastal engineering report was prepared with the numerical modeling results and recommendations for the marine works design including storm surge elevations for the development.

Coastal Systems completed the design of the marine works for the project that included the coastal shoreline stabilization with 2,000 feet of revetment constructed with approximately 20,000 tons of local armor stone. Dredging of 2,200 cubic yards was also designed to improve water quality within the lagoon. The marine works project included 450 linear feet of steel sheet piling and concrete cap to support the reclamation area for the entrance to the development along with the bridge and flushing culvert. Timber docks were designed for 29 private residential lots, 4 spa cabanas, and for the recreation and water sports areas. In addition, a timber dock was designed for the local fishermen. Coastal Systems prepared construction documents for the marine works, and provide construction administration services.



Wave Propagation Numerical Model into Bay



Marine Works



Client: Implementation, Limited

Location: St. Mary, Jamaica

Date of Completion: 2009

Construction Cost: \$5.5M



www.coastalsystemsint.com