

## **Tidal Current Behaviors and Remarkable Bathymetric Change in the South-Western Part of Khor Abdullah, Kuwait**

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**Abstract :** A study of the tidal current behavior and bathymetric changes was undertaken in order to establish an information base for future coastal management. The average velocity for tidal current was 0.46 m/s and the maximum velocity was 1.08 m/s during ebb tide. During spring tides, maximum velocities range from 0.90 m/s to 1.08 m/s, whereas maximum velocities vary from 0.40 m/s to 0.60 m/s during neap tides. Despite greater current velocities during flood tide, the bathymetric features enhance the dominance of the ebb tide. This can be related to the abundance of fine sediments from the ebb current approaching the study area, and the relatively coarser sediment from the approaching flood current. Significant bathymetric changes for the period from 1985 to 1998 were found with dominance of erosion process. Approximately 96.5% of depth changes occurred within the depth change classes of -5 m to 5 m. The high erosion processes within the study area will subsequently result in high accretion processes, particularly in the north, the location of the proposed Boubyan Port and its navigation channel.

**Keywords :** bathymetric change, Boubyan island, GIS, Khor Abdullah, tidal current behavior

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