Review of: "Evaluating Hydrologic, Geomorphic, and Vegetation Parameters to Assess Natural, Living, and Hardened Shorelines along the Northern Gulf of Mexico"

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Potential competing interests: No potential competing interests to declare.

Evaluating Hydrologic, Geomorphic, and Vegetation

Parameters to Assess Natural, Living, and Hardened

Shorelines along the Northern Gulf of Mexico.

This article is base on the assessment of six different coastline sites, all containing a natural, living, and hardened shoreline across two different energy groups (low and high). The aim of the investigation is to see how hydrologic, geomorphic, and vegetative parameters affected shoreline processes.

The novelty is link to the fact that the present paper increases our knowledge about what environmental conditions may be most suitable for living shorelines, of importance as sea levels rise and increase coastal erosion rates

The study site is the Northern Gulf of Mexico in Mississippi and Alabama coastlines (USA). The sampling methods around each site consist transect with on vegetative quadrat, sediment core sampling, wave gauge, turbidity temperature and water conductivity through YSI6600 series sondes on hydrologic features. .

On geomorphic feature, The main factors measured include relative exposure, shoreline erosion rate, and slope, as well as sediment bulk density, organic content, and grain size distribution derived from in-situ sediment cores. Long-term (multi-annual) erosion rates were measured for all three shoreline types at each of the six sites using DSAS approach.

MATLAB, ANOVA and principal components were used to performed different analyses

The results are more detailed and the authors find that the erosion rate of the coastline and its geomorphic shape were significantly influenced in the two energy groups, with the high energy coastlines eroding more quickly and having a steeper slope. Hardened shorelines were found to have little to no erosion, while natural shorelines had the greatest amount of edge erosion over time. Living shorelines lessened this rate of erosion compared to the natural marsh.

Also the authors built a conceptual model that could be used to help predict sites where the implementation of a Living shorelines project will help to retain the shoreline and ecosystem similar to natural marsh conditions within the northern Gulf of Mexico. It could help scaling up in different shorelines presenting the same conditions through the world