

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.

The article "Evaluating Hydrologic, Geomorphic, and Vegetation Parameters to Assess Natural, Living, and Hardened Shorelines along the Northern Gulf of Mexico" by Gabrielle Spellmann and Patrick Biber provides a comprehensive study on the comparison of natural, living, and hardened shorelines for coastal protection. The authors investigate the hydrologic, geomorphic, and vegetation parameters and their influence on shoreline processes.

The introduction effectively highlights the importance of natural marshes and the negative impacts of their decline, such as increased erosion and loss of ecosystem services. It also discusses the drawbacks of hardened shorelines, which provide immediate erosion protection but disrupt natural processes and have negative ecological consequences. The concept of living shorelines is introduced as an alternative approach that aims to mimic natural habitats and mitigate the negative effects of hardened shorelines.

The methods section provides a clear description of the study sites, data collection techniques, and analysis methods. The inclusion of figures helps visualize the sampling locations and the spatial layout of the study. The authors collect data on hydrologic features, geomorphic features, and vegetation abundance, using various instruments and sampling techniques.

The results presented highlight the key findings of the study. They indicate that high-energy coastlines erode more quickly and have steeper slopes compared to low-energy coastlines. Hardened shorelines exhibit little to no erosion, while natural shorelines experience the greatest amount of edge erosion. Living shorelines are shown to reduce erosion rates compared to natural marshes. The sediment parameters and vegetation characteristics are also compared among the different shoreline types, providing insights into their differences.

Overall, the article appears well-researched and provides a thorough analysis of the evaluated shoreline types. The inclusion of specific data analysis techniques and statistical tests strengthens the scientific rigor of the study.