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.

Dear authors, the work is solid in its results, however, I suggest clarifying some minor aspects of its structure:

1. The title of the paper is repetitive the word (to Assess).

2,. After reading it, what they really did was a comparison.

In the abstract the objective states:

We focused on evaluating hardened versus living shorelines for coastal protection and compared them to adjacent natural marsh shorelines suffering excess erosion rates.

3.- The title of the paper could be:

Comparison of hydrologic, geomorphic and vegetation parameters of natural, living and hardened shorelines along the northern Gulf of Mexico.

a) Subject of study: of natural, living and hardened shorelines along the northern Gulf of Mexico.

b) Subject: Variables (hydrologic, geomorphic and vegetation parameters).

c) Method: Comparison

4,. the problem statement would be appropriate to add some reference,

"Property owners try to prevent flooding and erosion from occurring by armoring their shoreline with seawalls and bulkheads, which provide immediate protection to the property. While stopping erosion, armoring destroys the vegetated marsh ecosystem, and a better solution may be to use living shorelines that can mimic natural habitats and processes."

(Erdle et al., 2006; Swann, 2008; Gittman et al., 2016)

Ecosystem services are interrupted due to the loss of vegetation and organisms after the implementation of a hardened structure (Roberts, 2010) **,** in part driven by this change in sediment properties.

The literature review is appropriate for the reader to understand the study.

Objective

This paragraph of the description of the objectives of the work is confusing, it does not coincide with the

abstract, nor with the title:

“The goal of this study was to**investigate the effects** of three different shoreline types (natural marsh, living shoreline, and hardened shoreline) on hydrologic, geomorphic, and vegetation conditions by synthesizing data collected at six representative living shoreline study sites along the northern Gulf of Mexico”

“The objectives were to: (1) collect and compare data on hydrologic features, including wave power and turbidity, (2) determine geomorphic features, including slope and sediment composition, (3) determine the abundance and diversity of shoreline vegetation for the three shoreline types, and (4) synthesize these various data into a conceptual model to facilitate identification of shoreline conditions where living shoreline projects are more likely to be successful.”

T**he question is: what is the general objective?**

In the main objective they write **effect** of three types of.....
In the title **evaluation** of ....
In the summary **comparison** of ....

I understand that the objectives described in this paragraph are part of the research,
but in reality the main objective is:

“the effects of three different shoreline types (natural marsh, living shoreline, and hardened shoreline) on hydrologic, geomorphic, and vegetation conditions by synthesizing data collected at six representative living shoreline study sites along the northern Gulf of Mexico.”

I understand that the objectives described in this paragraph are part of the research,
but in reality the main objective is the comparison of

Maybe in the methodological section you can write the objectives 1 to 4 as part of the methodology, written in a different way. One objective is enough to understand what they did, the work is very interesting because it is an arduous field work and a lot of effort and vital to solve a problem.

It is important to mention the knowledge gap and highlight the originality of the work.

Which of the probes, the YSI 6600 V2-4, is compatible with real-time data logging systems?

Because it is appropriate to place only one probe between the HS -LS- NS , what is the distance? It would be appropriate to place in figure 3 the distances between the elements for a better description. It is mentioned in the text, but not in the figure.

To collect the sediment samples, it was refrigerated and processed as soon as possible.
At how many degrees in the field and in the laboratory?

"Taxonomic guides for the northern Gulf of Mexico"**; which databases or guides did you use for identification?**

Maybe for the readers it would be nice to see pictures of the vegetation?*Juncus roemerianus, Sporobolus alterniflorus (* sinónimo *Spartina alterniflora), Spartina patens, Spartina cynosuroides, Distichlis spicata, Sagittaria lancifolia, Fimbristylis castanea, Schoenoplectus americanus* y *Bolboschoenus robustus.*

*Why K-W tests? if the Kruskal-Wallis test is used to determine whether the**medians** of two or more groups differ. Data should have a categorical factor, a continuous response, and data from all groups should have distributions with a similar shape.*

Data Interactions and a Conceptual Model

It is an extraordinary contribution to knowledge.
Previously very well discussed in the previous section, congratulations !
Highlight this in your conclusions

Conclusions

Suggestion:
the objective of this study was to*compare* the hydrological, geomorphic, and vegetative parameters can affect different types of shorelines (natural marshes, living shorelines, and hardened shorelines in six living shoreline restorations established in a variety of coastal exposures to identify the conditions under which a living shoreline project can be most effective.

It was found that .....the amount of energy impacting a shoreline is a good indicator of environmental conditions where implementation of a living shoreline may provide a potentially beneficial outcome. In general, low energy shorelines exhibited less turbidity, less erosion, sediments with a higher percentage of silt/clay, more sediment organic matter, and a higher diversity and percentage of vegetation cover. High-energy sites exhibited greater variability in the responses of these factors than did low-energy sites

Site selection for living shorelines is a crucial factor that depends on multiple elements (Arkema et al., 2013; Bayraktarov et al., 2015) i**t is not appropriate to place references in conclusions.**

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Congratulations to the authors for the outstanding work, only minor revisions.