Science Evaluation

Bucket 2 – Council Selected Restoration Component

PROPOSAL TITLE

Egmont Key Restoration and Storm Damage Reduction

LOCATION

Egmont Key, Hillsborough/Tampa Regional Area, Florida

SPONSOR(S)

Department of the Army

TYPE OF FUNDING REQUESTED (Planning, Technical Assistance, Implementation)

Implementation

REVIEWED BY:

DATE:

12 January 2015

Best Available Science:

These 6 factors/elements help frame the reviewers answers to A, B and C found in next section:

1. Have the proposal objectives, including methods used, been justified using peer reviewed and/or publicly available information?

- (●) YES
- ( ) NO
- ( ) NEED MORE INFORMATION

Comments

In particular, the methods proposed for beach nourishment have been extensively tested and applied, including by the four USACE Districts covering the Gulf of Mexico.

2. If information supporting the proposal does not directly pertain to the Gulf Coast region, are applicant's methods reasonably supported and adaptable to that geographic area?

- (●) YES
- ( ) NO
- ( ) NEED MORE INFORMATION

Comments

Directly applicable to the Gulf Coast region.

3. Are the literature sources used to support the proposal accurately and completely cited?

- ( ) YES
- (●) NO
- ( ) NEED MORE INFORMATION

Comments

Unfortunately, the literature sources are not directly cited to provide supporting evidence in the narrative, but only as supplemental documentation. Thus, there is not direct substantiation of any of the direct assertions that would benefit from literature documentation.

4. Are the literature sources represented in a fair and unbiased manner?

- ( ) YES
- (●) NO
- ( ) NEED MORE INFORMATION

Comments

They are not represented at all, and as mentioned above are insubstantial.

5. Does the proposal evaluate uncertainties and risks in the scientific basis for the proposal, including any identified by the public and Council members?

- ( ) YES
- (●) NO
- ( ) NEED MORE INFORMATION

Comments

I view the evaluation of uncertainties and risks as insufficient. The only reference is to the use of a sheet pile feature to stabilize the beach associated with a high energy wave environment, which was evaluated based on expert hydrologic modeling knowledge for which they stated that "There is minimal risk associated with the proposed features and the sand placement." There is no mention of either uncertainties about the sustainability of the nourished beach profiles under probability scenarios of severe storm events, not of any of the population responses of endangered species. Furthermore, and surprising for a USACE proposal (which operates under a guidance for Sea Level Rise Consideration for its civil works

6. Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk that in 5-10 years the project/program will be obsolete or not function as planned given projections of sea level rise?)

- ○ YES
- ◉ NO
- ○ NEED MORE INFORMATION

Comments

There is no detailed analysis of the uncertainties and risks of achieving the project's objectives other than simply stating that beach renourishment would have to be conducted every seven years. And, while the objective of adaptive management is implied under heading #3 there is no presentation of what would constitute the actions that would need to be initiated if the monitoring indicated unacceptable/unpredicted change, e.g., no targets or triggers are described and no suggestion of redeemative actions are described, other than statements such as "improving the beach berm design following each

Based on the answers to the previous 6 questions, and giving deference to the sponsor to provide within reason the use of best available science the following three questions can be answered:

A. Has the applicant made a reasonable determination that the proposal is based on science that uses peer-reviewed and publicly available data?

- ○ YES
- ◉ NO
- ○ NEED MORE INFORMATION

Information Needed:

While there is ample availability of scientific and technical literature documenting the short-term success and benefits of beach nourishment---largely untapped in this proposal---there is no discussion of the alternative concept of allowing natural shoreline processes to prevail as part of a strategy to adapt to sea level rise associated with climate change (e.g., Nordstrom and Jackson 2012; Geomorphology 199:179-191)

B. Has the applicant made a reasonable determination that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?

- ○ YES
- ◉ NO
- ○ NEED MORE INFORMATION

Information Needed:

As described above, the applicant has not provided any rigorous scientific assessment of the risks and long-term prognosis of the proposed actions.

C. Has the applicant made a reasonable determination that the proposal is based on science that clearly documents and communicates risks and uncertainties in the scientific basis for such projects?

- ○ YES
- ◉ NO
- ○ NEED MORE INFORMATION

Information Needed:

Science Context Evaluation

A. Have other methods been discussed and reasons provided to why the method is being selected (e.g., scientifically sound; cost-effectiveness)?

No, other than stating that it is an eminently "tried-and-true" methodology.

B. Has your agency/vendor/project manager conducted a project/program like the one proposed?

No.

C. Is there a risk mitigation plan in place for project objectives? (captures risk measures as defined under best available science by the Comprehensive Plan and Act)

No, there is no applicable adaptive management framework that describes either alternative actions or mitigation measures.

D. Does the project/program consider consequences with implementation? (captures risk measures as defined under best available science by the Comprehensive Plan and Act)

No. There is no apparent analysis of storm/hurricane scenarios that would provide some indication of the risk of implemented beach renourishment and structural stabilization being compromised, and what reoccurrence frequency and intensity is being incorporated into the present implementation plan.

E. Does the project/program have clearly defined goals?

Yes, the applicant identified the broad, generic goals of the Initial Comprehensive Plan of the RESTORE Council that conformed to the project's primary and secondary goals. However, they were not clarified and refined to fit the specifics of this project. To this effect, the statement that "A summary of how this project includes the goals and objectives pursuant to the Initial Comprehensive Plan of the RESTORE Council is stated below." was not actually fulfilled beyond the context of the generic RESTORE Council goals (and objectives).

F. Does the project/program have clearly defined objectives?

Similarly to goals (E. above), while the applicants identified how their project would address generic RESTORE Council objectives, they fail to follow through with any specific identification of project-specific objectives.

G. Does the project/program have measures of success? (captures statistical information requirement as defined by the Comprehensive Plan and Act)

Yes, to varying degrees, project measures of success were identified, especially in the case of endangered species criteria. It would have been nice to see specific thresholds and triggers of success, but the relative levels around pre- and post-construction levels provide some indication.

H. Is a monitoring program in place to determine project goals, success and help adaptive management (if applicable)? (captures statistical information requirement as defined by the Comprehensive Plan and Act)

Yes, monitoring programs and criteria are identified, which should be implemented effectively with the collaboration of the UWFWS.

I. Does the project/program consider recent and/or relevant information? (captures statistical information requirement as defined by the Comprehensive Plan and Act)

Not that are extremely helpful. For instance, there is no change analysis information that provides any indication of exactly how dynamic Egmont Key actually is, what the rate of movment, beach erosion, etc. actually is.

J. Has the project/program evaluated past successes and failures of similar efforts? (captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the Comprehensive Plan and Act)

No. It is simply stated that this is a proved technology.

Please summarize any additional information needed below:

It should be acknowledged that Egmont Key has extremely valued historical and cultural structures and significance which would likely be protected in the short term by the proposed beach nourishment regime. Alone, these features may justify implementation of the project, but it is uncertain whether that lies within the scope of RESTORE funding with focus on habitat or water quality?