Science Evaluation

Bucket 2 – Council Selected Restoration Component

PROPOSAL TITLE

Beneficial Use of Dredged Material to Create Emergent Tidal Marsh in Upper Mobile Bay

LOCATION

Alabama

SPONSOR(S)

Department of Army (Mobile District)

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

Planning, Implementation, Program

REVIEWED BY:

DATE:

1/11/15

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

Yes, though additional peer-reviewed literature is available and the number of citations used is quite limited.

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

All the information included directly pertains to the Gulf.

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

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

Comments

Yes.

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

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

Comments

Would like to see more references - pretty incomplete list - particularly from peer-reviewed sources.

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

Yes. The potential of soft sediments to provide a poor foundation for the berms is identified. Also effects of ships and storms are considered. Environmental risks would be minimized by timing construction appropriately. Risks associated with hazardous, toxic, and radioactive waste are also identified.

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

Yes. Specific scenarios of sea-level rise are explicitly considered. The option to raise the containment berms if needed was also identified as a potential response to rising sea levels. Monitoring protocols seem poised to track sea-level rise in order to allow an adaptive response.

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:

Yes. Engineering and project reports from similar efforts are used to develop this proposal

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:

Yes. Engineering and project reports from similar efforts are used to develop this proposal

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:

Particularly for sea-level rise, this proposal has done an excellent job of documenting and communicating specific levels of risk.

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)?

Yes. Page 13 notes the benefits of this approach and highlights its cost-effectiveness.

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

Yes. The USACE, Mobile District has worked on similar BU sites nearby (e.g., Gaillard Island, Singing River Island).

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)

Yes. This proposal identifies numerous uncertainties and risks, potential mitigation options, and outlines them as a component of a monitoring protocol.

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

Yes. Potential effects on cultural resources and Brookley Air Field are already being considered.

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

Yes. The primary goal of this project is to restore and conserve habitat by creating and restoring an estimated 1,200 acres of estuarine tidal marsh through the placement of readily available sediment material from the Mobile Bay navigation channel, ASPA terminals, and local private dredging activities into the upper bay BU area (Page 15)

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

Yes. The primary objective of the proposed project is to Restore, Enhance, and Protect Habitats by restoring approximately 1,200 acres of coastal 16 wetland habitat through the construction of a semi-submerged containment area and placement of dredge material at a cost of about $23,000 per acre (page 15-16)

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

Measures of success are identified on page 9. However, these are fairly general and specific performance criteria by which success will be measured remain to be identified in the planning phase of this project

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)

Although the monitoring plan is not currently in place, development of a monitoring protocol that would include project goals, objectives, performance criteria, monitoring methods and schedule, and potential adaptive management measures is identified as a necessary step prior to construction (page 9). Given similar monitoring protocols have been developed for other projects like this by this group, I am confident this monitoring protocol would be appropriately rigorous and effective.

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

Beyond the surveys identified on page 7, this work references studies and plans that are recent and relevant to this proposed project.

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)

Similar work in the Mobile District is noted. Additional documentation of those successes and failures would be potentially useful.

Please summarize any additional information needed below:

This proposal is well-written and has a clearly defined and achievable goal. Given the experience of the applicant with work of this type and the ground-work already laid towards implementation (surveys, etc.), the likelihood for success and long-term sustainability is high. A few more peer-reviewed references that evaluate the benefits of this work would be useful. Similarly, project reports from other BU sites that highlight successes and failures would strengthen the case for this work.