# Science Evaluation

## Bucket 2 – Council Selected Restoration Component

**PROPOSAL TITLE**

Alabama Barrier Island Restoration Through Beneficial Use of Dredged Sediments

**LOCATION**

Alabama

**SPONSOR(S)**

State of Alabama

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

Project, Planning, Technical Assistance, Implementation

**REVIEWED BY:**

**DATE:**

12/19/2014

## 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

Based on the attached Environmental Assessment and Finding of No Significant Impact, authored by the USACE, the objectives are justified.

**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

Not applicable. All supporting information provided in the proposal is locally produced and vetted.

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

- ○ YES
- ◉ NO
- ○ NEED MORE INFORMATION

Comments

Limited literature sources provided in Reference section. Though no parenthetical citations throughout proposal to indicate which references support particular statements. I was really looking for documentation that supports the project proponent's claim that the 2011 project was successful, but this appears to be lacking. This leaves me wondering what monitoring occurred that would deem overall project success? There is an aerial photo that shows sand movement, but I'm still left wondering where the material truly ended up and how this was measured?

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

- ◉ YES
- ○ NO
- ○ NEED MORE INFORMATION

Comments

The references that are included appear to be fair and unbiased.

**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

Attached Environmental Assessment contains supporting information. As well, the author addresses many risks and uncertainties in the main body of the proposal. However, it is unclear because of the lack of citations, who performed the risk analysis described on page 12 of the proposal.

**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

The proposal addresses sea level rise predictions and the USACE's approach to designing projects with a range of values in mind.

## 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:

The justification for the proposed objectives is based nearly solely on replicating a "highly successful" project completed in 2011. However, there is a lack of supporting monitoring information that documents the "success" of that project (i.e., Where did the sand truly end up? Did they see increased fish and wildlife benefits on west Dauphin Island?". The proposal also refers to "regional sediment management principles and goals" yet would benefit from further explanation with examples to

**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:

The applicant bases the primary project justification on and references the similar, "highly successful" project completed in 2011. However, there is a lack of supporting monitoring information that documents the "success" of that project. It is unclear as to where the material truly ended up, the actual and real documented fish and wildlife benefits on west Dauphin Island, and

**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:

The applicant includes an approved Environmental Assessment with the proposal, which evaluates many risks, potential impacts, etc.  Additionally, the USACE has extensive guidance on designing projects with sea level rise in mind.

## 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)?**

The proposal is based on a "successful" similar project completed in 2011 and in collaboration with the Mobile Harbor IWG.  It is intended to also take advantage of a leveraging opportunity for future work.

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

Yes, my Agency has been involved in many beneficial use of dredge material and regional sediment management projects throughout the Gulf of Mexico.

**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)**

There is mention of adaptive management measure that will be taken "if project monitoring indicates that changes need to be made in the timing and/or location of sediment placement", but further specifics are lacking.

**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, the attached Environmental Assessment and FONSI addresses potential environmental impacts from the project.

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

Yes, the proposal clearly states the goal of providing a sediment source back into the littoral transport system for barrier island restoration.

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

Yes. The proposal specifically states 3 objectives; initial dredging of SIBUA,3 additional dredging cycles of the Mobile Bay Bar and BU placement, and monitoring.

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

Very loosely. Project success appears to be defined as the "placement of additional sandy material in this littoral transport system". Vague discussion of potential monitoring to discern success, but overall this piece is lacking. Permit compliance and achieving contract specifications for construction are only part of the overall story of success.

**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)**

There is a $500K monitoring component budgeted for this project. Monitoring appears to be focused mostly on meeting permit and project plans/specifications. Additional monitoring in the form of aerial photography, sand tracer studies and hydrographic surveys will monitor changes in the placement area.

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

Proposal is based on 2011 project success. However, little evidence of actual success from that project is provided to justify using this approach again. One would need to make assumptions with little or no data to support those assumptions.

**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)**

It seems as though yes, the USACE has evaluated past successes (mostly with the 2011 project); however, this data is not included in the current project proposal.

**Please summarize any additional information needed below:**

Isn't there another study that was recently funded by the NFWF GEBF that is designed to develop a comprehensive restoration plan for Dauphin Island? Does (or would) that include or address the topic of sediment management? Is there overlap between the two efforts, or could there be synergy?

It is hard to get a sense of why this implementation method was chosen over the more typical path of direct beach renourishment (not that I'm suggesting renourishment is a better way to go). Is the idea here that this assisted littoral transport