SCIENCE EVALUATION

Bucket 2 – Council Selected Restoration Component

PROPOSAL TITLE

Enhancing opportunities for beneficial use of dredge sediments

LOCATION

Gulf Coast Region States of Alabama, Mississippi and Texas

SPONSOR(S)

Mississippi

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

Planning, Technical Assistance and Program

REVIEWED BY:

DATE:

January 2, 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

"The main objective of the proposal is to establish beneficial-use-specific receipt sites across the Gulf. " (page 5) "The proposal objective is to enhance state's abilities to beneficially use dredge sediments." (page 6). The proposal references cornerstone documents related to beneficial use of dredged material for wetlands development. Foundational information needed to design coastal marsh beneficial use sites is found in the section titled Science of beneficial Use of Dredge Sediments as well as in the discussion of Beneficial Use Program Steps and Challenges.
The proposal includes two parts. The first is conducting planning, design and other technical work for state-specific beneficial sites identified in the proposal. The second component includes a planning and site prioritization process that will be developed from lessons learned from state-specific sites. Methods by which current state-specific sites were selected is not clearly defined in the proposal.

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?

- [x] YES
- [ ] NO
- [ ] NEED MORE INFORMATION

Comments

The majority of the information supporting the proposal directly pertains to or contains examples within larger programmatic documents that reference Gulf Coast Region studies and activities. The methodology of Beneficial Use site selection including the identification of categories of technical information necessary to complete site selection including; physical area, climate, dredge and political considerations, are applicable across the entire Gulf Coast Region.

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

- [x] YES
- [ ] NO
- [ ] NEED MORE INFORMATION

Comments

Literature sources used include foundational studies that have investigated the function and value of created wetlands for a range of resources including birds, fishes and other invertebrate as well as plant life. Other sources include long standing reference materials such as Mitsch and Gosselink's Wetlands which is often used as a textbook in formal educational and training settings. Additional references include technical notes and other U.S. Army Corps of Engineers (Corps) documentation of beneficial use of dredged material projects, methods and best practices specifically implemented in

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

- [x] YES
- [ ] NO
- [ ] NEED MORE INFORMATION

Comments

The literature sources are represented in a fair manner and address historical concerns about function and value of constructed verses natural coastal wetlands. Other literature sources present also respond to those concerns and cite the more recent studies that have examined function and value of created or nourished sites for birds. The proposal also highlights key challenges of beneficial use activities including sediment or dredged material availability, timing and location.

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
- [x] NEED MORE INFORMATION

Comments

The proposal indicates that uncertainties and risks will be avoided through "Good planning, timing, and engineering based on our scientific knowledge of successful projects and BU programs will allow avoidance of risks and uncertainties and result in a net gain in coastal marsh habitat to reverse the trending losses in the Gulf of Mexico" (page 5). This statement provides a limited and generic treatment as to how uncertainties and risks have been evaluated on scientific basis for the proposal. The proposal is a combination of state-specific projects and development of programmatic methodology for Beneficial Use site selection. Uncertainties and risks in the scientific basis for the proposal are not discussed within the write ups for the

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

While uncertainties and risk are not specifically discussed, the proposal does provide a general treatment of this information by including a statement that engineering, design, and key planning steps will be undertaken to ensure the sustainability of any future construction project. " (page 7). The proposal does not provide a specific discussion regarding uncertainty or risk in 5-10 years that the program would be obsolete or not function as planned. However, the proposal identifies climate as a criteria for the future effort of developing "formalized set of criteria" for Beneficial Use site selection. The climate criteria would

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 applicant has utilized a mix of peer-reviewed scientific publications, textbooks and government prepared technical notes, document and reports to form the basis of their proposal to enhance beneficial use of dredge sediments in Coastal Areas of the Gulf of Mexico within Mississippi, Alabama and Texas.

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 has made a reasonable determination that the proposal is based on science that incorporates objectivity and integrity. The discussion of the development of the beneficial use program site selection process identifies potential criteria that would be utilized for this scientific approach. The proposal would be enhanced if the methodology for the selection of the

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:

Overall the applicant has incorporated a discussion of lessons learned and historical successes of Beneficial Use of dredged material implemented with Corps of Engineering Federal Channel maintenance. It is important to note that for Corps Beneficial Use projects where incremental cost is funded with cost sharing agreements such as Section 1135 or the Water Resources Development Act (WRDA) of 1986 or Section 204 of the WRDA of 1992, the local sponsor is responsible for long term operation, maintenance, replacement and rehabilitation costs. In these cases the long term sustainability is the responsibility of the local sponsor. As a result long term maintenance (sustainability) and the risk or uncertainty associated with the long

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)?

Other restoration methods have not been discussed, however, in the context of the proposal to both implement the state-specific projects and develop criteria and guidelines for programmatic beneficial use, the lack of a discussion other techniques has not detracted from the overall proposal. The method by which habitats are proposed to be restored or enhanced, is clearly identified as being through beneficial use of dredged material. That process and it's effectiveness has

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)

A specific risk mitigation plan has not be identified in this proposal, however the proposal itself is identified as a program that includes planning and technical assistance components. The proposal is for both program planning and project design and permitting and does broadly indicate that "engineering, design and key planning steps will be undertaken to ensure the sustainability of any future construction project". The proposal also broadly discusses challenges to beneficial use programs (page. 5). Additionally the proposal (page 7) identified criteria and guidelines that would be considered to develop the

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

The program identifies habitat creation as a beneficial or positive consequence of implementation. The proposal includes program planning, technical assistance and project design and permitting components. Since project planning is a main component of the proposal negative consequences, or risk measures of program implementation have not been fully developed in this phase of the process (in this proposal). Negative consequences of the state-specific project proposals other than the general statements related to using good planning (engineering and design) to ensure success have not be defined.

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

Yes the program proposes to increase habitat in a cost effective manner through both the proposed state-specific projects which would develop new beneficial use sites and through the development of criteria, guidelines and registry of available dredge materials. Program goals are defined qualitatively but not quantitatively. Quantitative goal could be identified during the planning phase.

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

Yes the main objective is to establish beneficial use sites across the Gulf of Mexico so that habitat could be created with dredge material during an additional implementation or construction phase. Similar to program goals, the program objectives are defined qualitatively. Quantified objectives could be developed during the planning phase.

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

The proposal does not include specific or quantitative measures of success nor has the proposal identified specific measures of success that could be used as a feedback loop for an adaptive management type evaluation. The proposal indicates that "once habitat is created through these specific tasks there would be a commitment to measuring successes of habitat created, and delivering the results of sustainable habitat restoration." (page 12). It is important to note that the proposal is to conduct program planning, technical assistance and project design and permitting activities and not construction or implementation

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)

A monitoring program has not been identified. There is a general statement on page 12 of the proposal that indicates "once habitat is created through these specific tasks there would be a commitment to measuring successes of habitat created, and delivering the results of sustainable habitat restoration.". A method to define success or feedback loop for adaptive management have not been identified. It is important to note that the proposal is for program planning, technical assistance and project design and permitting and not construction or implementation activities. A monitoring program could be developed

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

The program considers both relevant historical information about wetlands and wetland development/creation activities as well as more recent information that measures function and value of created wetlands, including bird use, fisheries use, and plant community development. The recent Gulf of Regional Sediment Management Plan technical framework was also utilized in the development of this proposal.

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)

The information in the proposal focuses on the programmatic success of the Corps beneficial use program of dredged material and the use of technical notes and other U.S. Army Corps of Engineers (Corps) references provides a programmatic discussion of past successes of a beneficial use of dredged material projects. The proposal also includes a discussion of Beneficial Use program challenges, although it does not provide examples of specific failures, it does identify limitations that must considered and overcome for a successful project.

Please summarize any additional information needed below:

The proposal would be improved if uncertainties and risks of both the state-specific projects as well as general uncertainties and risks of a Beneficial Use site selection and development process were identified. The proposal should address uncertainty and risk both in general terms as well as for the 5-10 year period for state-specific sites identified in the proposal. As previously discussed in the evaluation, for Federal projects conducted under either Section 1135 of the Water Resources Development Act (WRDA) of 1986 or Section 204 of the WRDA of 1992, the local sponsor is responsible for long term operation, maintenance, replacement and rehabilitation costs. This means the local sponsor is responsible for maintenance