Science Evaluation

Bucket 2 – Council Selected Restoration Component

PROPOSAL TITLE

Biloxi Marsh Living Shoreline

LOCATION

St. Bernard Parish, Louisiana; Eloi Bay and Eloi Point near the mouth of Bayou la Loutre

SPONSOR(S)

State of Louisiana

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

Engineering and design, permitting, and Phase I Adaptive Management

REVIEWED BY:

DATE:

12/17/2014

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

Yes, the objectives and methods were clearly justified in the proposal. The project originally began as a Coastal Impact Assistance Program (CIAP) project. Therefore, the initial engineering and design work for the project have already been completed.

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

The information supporting the proposal directly pertains 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

Yes, the literature sources used to support the proposed project are accurately and completely cited.

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

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

Comments

These literature sources are represented in a fair and unbiased manner.

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

The proposal does evaluate uncertainties and risks in the project.

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 does evaluate uncertainties and risks in achieving the objectives over time. Uncertainty about the magnitude of future rates of relative sea level rise was identified as the largest single environmental unknown in planning and implementing this project.

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:

Initial engineering work has already been done to evaluate the ability of candidate reef material to withstand the surge generated by a Category 1 hurricane. A similar project constructed in Terrebonne Bay, LA also is providing information that can be used to evaluate different types of engineering structures and their effectiveness in reducing shoreline recession and enhancing local oyster production.

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 seems to have made a reasonable determination that the proposal is based on science that maximizes the quality, objectivity, and integrity of information available in the literature and from ongoing projects.

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 appears to have made a reasonable determination that the proposal is based on science that clearly documents and communicates risks and uncertainties associated with this project. Accounting for potentially high and variable rates of relative sea level rise is identified as a major element of risk for this project. The applicant intends to apply an integrated suite of Predictive Models and Planning Tool, which was developed for the State's Master Plan, to account for this uncertainty in designing the project.

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)?

Several types of materials that could be used to construct the project were identified and discussed in the proposal as were plans for evaluating these materials to select the best product. A geotechnical analysis and wave dynamics study have been completed for the project site, and the data from these efforts will be used to select the best product.

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

The State of Louisiana has constructed a similar project in Terrebonne Bay (Terrebonne Bay Shore Protection Demonstration) to evaluate various types of engineering structures and their effectiveness for reducing shoreline retreat and enhancing oyster production. The Nature Conservancy also has constructed reef projects near the project area.

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)

Risks and uncertainties associated with the project are clearly described in section 5 of the proposal. The applicant seems to have anticipated the potential risks and uncertainties. Initial steps have been taken to reduce these unknowns by doing a geotechnical analysis and wave dynamics study of the project site. A model and planning tool will be used to account for anticipated future rates of relative sea level rise that would impact the project. Additional analyses (survey of pipelines and cultural resources) will be conducted in the planning process to further reduce uncertainty and risk.

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, see comment above.

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

Yes, the project goals are clear.

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

Yes, the objectives of this project are clearly defined.

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

Yes, measures of success described in the proposal include a reduction in shoreline recession and adequate oyster recruitment and production to maintain a living shoreline reef.

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)

The applicant indicates that the project will be monitored, but details are sketchy. The System-Wide Assessment and Monitoring Program (SWAMP) is identified as the tool that will aid project monitoring, but this tool has not been fully developed.

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

Yes, the project relies on recent data collected to evaluate candidate reef structures, a geotechnical analysis of the site, and a wave dynamics study conducted in the project area.

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)

Yes, the Terrebonne Bay Shore Protection Demonstration project has been evaluated for different types of engineering structures and their effectiveness in reducing shoreline loss and enhancing local oyster production.

Please summarize any additional information needed below:

This project appears to be worthy of funding. The applicant has already done some initial planning and conducted preliminary analyses of the project site. The project will build on knowledge learned from a demonstration project in Terrebonne Bay that used methods and structures similar to those planned for this project. The project has been vetted and is included in the State's Master Plan.