SCIENCE EVALUATION

Bucket 2 – Council Selected Restoration Component

PROPOSAL TITLE

Coastal Ecosystem Enhancement and Restoration in the Barataria-Terrebonne Basin

LOCATION

Lafourche and Terrebonne Parishes, Louisiana

SPONSOR(S)

USDA

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

Project, Technical Assistance, Implementation

REVIEWED BY:

DATE:

1/19/2015

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

Conceptually, these projects are all based on peer reviewed and/or publicly available information. Re-routing runoff from agricultural areas through wetlands has been demonstrated to have significant benefits for improving water quality in receiving waters (i.e. reducing nutrient and sediment concentrations in runoff). This benefit is highly dependent on site-specific issues and this analysis will take place using the funding sought in this proposal.

Re-routing stormwater through wetlands has also long been thought to provide improvements to water quality in receiving waters; the actual efficacy, though, is likely dependent on site-specific factors that have not been discussed in this proposal. Specifically, the stormwater is intended to be routed through semi-impounded wetlands adjacent to drainage canals. While this will likely improve retention time within the wetland complex prior to flushing directly downstream into the major coastal

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

N/A. Information presented pertains directly 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

The literature sources appear to be accurately and completely cited.

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

- ◉ YES
- ○ NO
- ○ NEED MORE INFORMATION

Comments

The 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

In general, the projects are low risk, low uncertainty project types that are highly likely to succeed. However, some uncertainties, such as effects of agricultural and stormwater runoff on the soil dynamics of receiving wetlands and the long-term effects on sustainability, are not discussed. Some recent literature indicates that nutrient-rich water may weaken organic soils over the long-term under certain circumstances if other aspects of soil building are not also addressed (e.g. increasing mineral sediment introduction to the marsh surface). This should be addressed in the planning and design phase if these projects move forward.

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 not specifically discuss major risks in achieving objectives over time, such as rising sea levels and how marsh sustainability and project effectiveness will evolve through time. This is especially important for those project components that involve large capital costs (re-routing stormwater) as longer project lifespans are expected for such projects. Many of the other unexplored uncertainties are assumed to be addressed part of the site selection, planning, and design activities to be accomplished using funding from this proposal. Hurricanes are noted as a threat to activities along the Gulf

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:

Assuming more detailed information will be obtained and analyzed with this funding.

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:

Assuming more detailed information will be obtained and analyzed with this funding.

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:

Some additional discussion of diverted water quality and its effects on sustainability of receiving wetlands would be beneficial, as discussed above.

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 methods of achieving wetland sustainability and water quality improvements do exist but were not discussed. Regarding wetland sustainability, there is a scale of implementation that is critical to local and sub-regional restoration activities that is not fully addressed by Louisiana's Master Plan which necessarily focuses on regional sustainability. This scale of project is important to local wetlands and water quality and would otherwise be unaddressed if the only coastal

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

Our agency has funded multiple projects similar in nature throughout the Gulf coast states.

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 risk mitigation plan was presented; it is assumed that this will be prepared as part of the site-specific planning and design.

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

Additional assessment of consequences are assumed to be a part of the implementation of these projects. Especially important to assess soil dynamics as part of any project that alters wetland hydroperiod and the quality of water flowing over the marsh surface.

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

The primary goals are to improve water quality in receiving waters outside of fastland areas in the Barataria-Terrebonne estuary, especially in shellfish-producing areas. Ancillary goals are to improve wetland sustainability, primarily in areas immediately adjacent to and at the margins of fastlands where agricultural and stormwater runoff can be redirected to benefit wetlands, and to provide more diverse microhabitats for shorebirds.

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

Objectives are quantified clearly for habitats. Clearly quantified water quality and shorebird objectives are not presented.

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

The project clearly discussed major variables to be monitored and the direction of the trend that is desired, but specific criteria or thresholds of success are generally missing. The information presented does discuss "as-built" conditions, but there is less information concerning how these projects are expected to evolve over time, and what would be considered "successful" at the end of the (unspecified) project life.

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 is proposed. The project sponsor should shape this monitoring to build on the Louisiana CPRA's monitoring programs as much as possible to contribute to understanding of this project within the system. Whenever possible, specific protocols should be standardized with Louisiana's ongoing monitoring programs (specifically CRMS). In addition, it is critical to monitor water quality in both current and proposed receiving areas, before and after implementation to fully assess project effectiveness- this aspect was not entirely clear from the discussion presented.

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

The project appears to consider recent and relevant information.

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 information was discussed within the proposal specifically highlighting similar and analogous projects. It is assumed that this information will be assembled, assessed, and incorporated into project activities during sire-specific planning and design activities undertaken as part of this projecct.

Please summarize any additional information needed below:

This proposal is based on sound science as far as it goes. Additional site-specific and component specific information could improve the proposal, especially additional water quality information, to better understand the magnitude of expected benefit relative to the existing problem.