SCIENCE EVALUATION

Bucket 2 – Council Selected Restoration Component

PROPOSAL TITLE

Bayou Dularge Ridge Restoration, Marsh Creation & Hydrologic Restoration; Phase I

LOCATION

Louisiana: In the Terrebonne Basin and Central Terrebonne marshes extending from S of Lake Decade through Lake Merchant S to Bayou Dularge Ridge

SPONSOR(S)

USDA, NRCS Louisiana

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

Planning: $ 5,162, 084

REVIEWED BY:

DATE:

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 information used is publicly available, but all cited information comes from reports. There were no peer reviewed publications cited. The vast majority of the justification for this work is based on reports performed by, or contracted by, Louisiana's NRCS office, the project proponent.

An important set of data in this proposal was from USGS work focused on land loss in the Terrebonne area (Figure 4). This graph was purported to show that land loss was averaging 186 acres per year from 1984-2011. While few would dispute that coastal Louisiana, and the Terrebonne area, are loosing marshes and coastal land each year, the exact amount and rate of the loss is questionable. This uncertainty was not diminished by the data presented in Figure 4. This graph definitely indicates a downward tread in the amount of land in this area from 1984 and 2011. However, the r[sq'd] for these data was

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

Information directly pertains to Gulf

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

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

Comments

I do not have access to all the various inhouse reports that were cited in this proposal and they are not easily available over the net. Thus, I cannot answer this question.

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

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

Comments

Unknown, see answer to #3 above.

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

I have no knowledge regarding what the public or Council members have or have not said with regards to this proposal.

Overall, uncertainties and risks were acknowledged to a small degree with the general disclaimer that working along the coast can be fraught with difficulties and uncertainties. Two important risk/uncertainty issues, access to the site and the weight of the rocks placed for the "Hydrologic Restoration Structure", were addressed. The former appears to be of little concern at this particular location and the latter will be addressed more thoroughly in engineering analyses during the design/implementation

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 project discusses benefits out twenty years, but does not address uncertainty or risks regarding the future in any appreciable manner. The assumption seemed to be that not much will change and extreme events are simply anomalies. For example, the modeled analysis of the benefit the project would provide for reducing marsh salinity was based only on flow data collected for 2011. The proposal notes that 2011 was a flood year for both the Atchafalaya and Mississippi Rivers so they discounted the high flows in May-July in determining the percent reduction in salinity. This approach is troubling as the

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:

Reports cited maybe publicly available, but they are not easily accessed and there were no peer-reviewed papers cited.

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:

I don't know. I am always suspect of a proposal or report that cites only its previous work in justifying the need/value/importance of the work that needs to be or has been done.

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:

A more indepth analysis of the risks and uncertainties would be appropriate, particularly with respect to subsidence, river flows, extreme storms, and perhaps sea level rise.

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)?

No.

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

No for the construction of the "Hydrologic Restoration Structure", but my agency has been involved in lots of projects trying to enhance marsh health and productivity by manipulating water flow structures.

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)

Unknown.

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

To a small degree. For example, the model apparently addresses changes in flow velocities as a consequence of the reduction in the opening.

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

Yes, reduce the opening, decrease salinity and obtain greater productivity of non-saline marshes.

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

Yes, by building the "Hydrologic Restoration Structure" salinity will be reduced and freshwater will be able to exert a greater influence on marsh plant growth.

It also states that "The net acres of marsh that are expected from the marsh creation component after 20 years are 282 acres" However, it was not clear how that figure, which is probably the single most important number in the document, was derived, it

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

No. The proposal addresses success with the following statements which are based on inference not statistical analyses.

"Because in situ organic production is an important component to soil maintenance and to sustaining elevation, the inference is that the reduction in organic production will increase the land loss rate. Therefore, it can also be inferred that an increase in production will reduce the land loss rate by increasing organic production."

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)

Not sure there was an exact monitoring program identified, but the proposal regularly acknowledged the need for monitoring to ensure the success of the project, particularly the built hydrologic structure. For example, "Proper budgeting for maintenance will also reduce the risk of failure and sustain the performance as designed."

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

Yes, to some extent.

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

Please summarize any additional information needed below:

Figures 6 and 7 regarding salinity data and the brief accompanying explanation were incomprehensible to me.

On strictly a common sense basis the project made sense to me and seemed like it provided value, but the scientific justification could be strengthened to help determine if this project is of higher priority than other proposals.

Reemphasize a point made in F above by cutting and pasting the comment: