SCIENCE EVALUATION

Bucket 2 – Council Selected Restoration Component

PROPOSAL TITLE

Texas Salt Bayou freshwater inflows restoration: feasibility study, design, engineering & permitting

LOCATION

Jefferson County, Texas

SPONSOR(S)

Texas Commission on Environmental Quality, Texas General Land Office

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

Project, Planning

REVIEWED BY:

DATE:

1/5/2015

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

Most of the justification for this project is based on gray literature and there appears to be very little established science to support the study. Overall I find the scientific justification for this study to be very weak, even though many of the agencies mentioned may "feel" that it is a necessary and appropriate solution. For example, a key hydrologic/salinity modeling study that was cited to justify installation of siphons for moving freshwater into the bayou (Pothina & Guthrie, 2009) seems to indicate that the salinity effects of siphon installation are likely to be localized, subject to seasonality in terms of effectiveness, and possibly counteracted by other forces. At one point (page 12), the proposal states “The construction of the siphon system could influence and improve salinity conditions…” Inclusion of "could" is not convincing given the amount of money that will be spent on this study. Even more concerning is that no real data is presented to show long-term trends in salinity, which is presumably measured on a routine basis by the agencies involved.

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

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

- ○ YES
- ◉ NO
- ○ NEED MORE INFORMATION

Comments

This proposal contains missing or incomplete references throughout. One critical reference (Alperin 1977; page 5), which conceivably provides justification for the siphons that are being proposed for installation, is missing altogether from the reference list.

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

- ◉ YES
- ○ NO
- ○ NEED MORE INFORMATION

Comments

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

See my response to question #1.

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

In regards to the actual planning and construction, I am concerned about the lack of a firm statement that permits can be obtained.

Scientifically, I am concerned that this project represents a “band aid” solution to salinity problems in Salt Bayou, but does not solve the main causes. In the longer term, this work simply creates another piece of infrastructure that will need continual

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:

Little to no peer reviewed is included in this proposal, and it is not clear whether the proposed technique would lead to scientifically verifiable improvements in the Salt Bayou ecosystem.

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 understand this question.

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:

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. This is my biggest criticism of the proposal- that it does not explore alternate approaches or more holistic ecosystem-level solutions to the perceived salinity problem in Salt Bayou. It is not entirely clear that the siphon method will even solve the problem.

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)

There is no risk mitigation plan in place despite uncertainties in permitting, adjacent landowner/stakeholder approval, maintenance costs and coordination issues with the Army Corps of Engineers.

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

I don't understand this question.

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

Yes

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

Yes

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

Yes, but these are only related to the planning/implementation technical phase. There is no clear plan to determine success of the restoration effort from a scientific/habitat standpoint.

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)

Yes

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

I don't understand this question.

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, and the scientific/technical basis for the work is nebulous.

Please summarize any additional information needed below: