Priority & Commitment To Plan Evaluation

Bucket 2 – Council Selected Restoration Component

PROPOSAL TITLE

Recovery and Restoration of Deep-water Coral Habitats in the Gulf of Mexico

PROPORAL NUMBER

DOI-1

LOCATION

Gulf of Mexico continental slope in vicinity of DWH oil spill

SPONSOR(S)

Department of Interior

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

Implementation

REVIEWED BY:

Ebonye T. Allen

DATE:

13 February 2015

A. Comprehensive Plan Goals

Of the goals addressed by the proposal, which is the single primary goal?
Proposals should discuss how the proposed activity is designed to address the primary goal.
Check one:

- (●) Restore and Conserve Habitat – Restore and conserve the health, diversity and resilience of key coastal, estuarine and marine habitats.
- ( ) Restore Water Quality – Restore and protect water quality of the Gulf Coast region's fresh, estuarine and marine waters.
- ( ) Replenish and Protect Living Coastal and Marine Resources – Restore and protect healthy, diverse and sustainable living coastal and marine resources.
- ( ) Enhance Community Resilience – Build upon and sustain communities with capacity to adapt to short- and long-term changes.
- ( ) Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

Notes:

As stated in the proposal, DOI seeks funding for data collection to understand changes and possible recovery to the impacted deep-sea coral communities, locating sources of populations of impacted coral, developing advanced techniques to understand the coral and associated community response, and to develop transplantation techniques for deep-sea corals.

B. Comprehensive Plan Objectives

Proposals must clearly identify which objectives the proposal will address

1. Restore, Enhance, and Protect Habitats

- [x] YES
- [ ] NO
- [ ] Not articulated
- [ ] N/A

2. Restore, Improve, and Protect Water Resources

- [ ] YES
- [ ] NO
- [ ] Not articulated
- [x] N/A

3. Protect and Restore Living Coastal and Marine Resources

- [x] YES
- [ ] NO
- [ ] Not articulated
- [ ] N/A

4. Restore and Enhance Natural Processes and Shorelines

- [ ] YES
- [ ] NO
- [ ] Not articulated
- [x] N/A

Notes:

8. Of these objectives which is the single primary objective the proposal addresses?

Check one:

- (●) Restore, Enhance, and Protect Habitats
- ( ) Restore, Improve, and Protect Water Resources
- ( ) Protect and Restore Living Coastal and Marine Resources
- ( ) Restore and Enhance Natural Processes and Shorelines
- ( ) Promote Community Resilience
- ( ) Promote Natural Resource Stewardship and Environmental Education
- ( ) Improve Science-Based Decision-Making Processes

C. RESTORE Act and Comprehensive Plan Priority Criteria

All proposals must explain if the proposal addresses one or more of the priority criteria as established by the RESTORE Act and Initial Comprehensive Plan and, if so, how.

1. This project is projected to make the greatest contribution to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region, without regard to geographic location within the Gulf Coast region.

(●) YES ( ) NO ( ) Not articulated ( ) N/A

2. This is a large-scale project/program that is projected to substantially contribute to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast ecosystem.

(●) YES ( ) NO ( ) Not articulated ( ) N/A

3. This project is contained in existing Gulf Coast State comprehensive plans for the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region.

( ) YES (●) NO

4. This project will restore long-term resiliency of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands most impacted by the *Deepwater Horizon* oil spill.

( ) YES (●) NO

5. Promote Community Resilience

( ) YES (●) NO ( ) Not articulated ( ) N/A

6. Promote Natural Resource Stewardship and Environmental Education

(●) YES ( ) NO ( ) Not articulated ( ) N/A

Notes:

As stated in the proposal, the principal goal of the proposed research is to support restoration and conservation of deep-sea coral habitats. Specific objectives include: document temporal change in deep-sea coral communities in order to track long-term responses to natural and anthropogenic disturbance; understand the environmental baseline conditions necessary for the long term resilience of deep-sea coral sites, including mapping, ocean circulation, surface production, organic flux to seafloor, larval supply, and microbial communities; develop advanced rapid response technologies to detect both lethal and sub-lethal impacts to deep-sea communities, including species-specific environmental sensitivity, quantification of health, and estimates of resilience; and develop and test methods for direct restoration of deep-sea corals as foundational efforts leading

D. Comprehensive Plan Commitments

All proposals must demonstrate how the proposal will achieve any or all of the commitments in the Comprehensive Plan. The commitments in the Comprehensive Plan are as follows:

Does the proposal articulate how it will achieve the following commitments in the comprehensive plan?

1. Science-based Decision-Making

(●) YES ( ) NO ( ) Not articulated

Notes:

As indicated in the submission, the project will gather the information needed to facilitate science-based decision making. The taxonomic and environmental data obtained through traditional methods will track temporal change in deep-sea coral communities. Sediment traps from three year-long deployments will be analyzed for a suite of environmental parameters to document the existing environmental conditions around selected deep-sea corals, and track coral larvae (potential new recruits) and particulate supply. It will also establish a monitoring program at key sites that will be invaluable in the event of future accidents. This study will be the first to use environmental sequencing to assess deep-sea corals and surrounding communities and provide baseline data for future restoration and management decisions. The genetic sequencing data,

2. Regional Ecosystem-based Approach to Restoration

(●) YES ( ) NO ( ) Not articulated

Notes:

As indicated in the proposal, this study will utilize advanced techniques to assess the recovery and restoration of impacted deep-sea coral habitats, including environments adjacent to corals, that will be applicable to both shallow and deep-sea sediments. The study defines 4 primary objectives that clarify the ecosystem-based approach applied to examine and track the recovery and restoration of deep-sea coral habitats: document temporal change in deep-sea coral community structure and function in order to track long-term responses to natural and anthropogenic disturbance; establish observation and monitoring of resources at a variety of deep-sea coral sites, including mapping, ocean circulation, surface production, organic flux to seafloor, larval supply, and microbial communities; develop rapid response techniques and advanced technologies

3. Engagement, Inclusion, and Transparency

(●) YES ( ) NO ( ) Not articulated

Notes:

As stated in the proposal, public awareness and educational opportunities will be integrated into both the field sampling program as well as broad-based outreach material development resulting from research analysis and results. Young scientists, recent graduate and undergraduate students from the Gulf States will be actively recruited to assist with this program. This innovative project, involving both explorations of new deep-sea locations and applications of new methodologies are well suited as a NOAA Office of Exploration and Research (OER) Signature Expedition for all field sampling years. The NOAA OER program includes internal staff dedicated to creating outreach and educational materials and their expertise will be utilized for the development of lesson plans and other materials. As indicated in the proposal, data will

4. Leveraging Resources and Partnerships

(●) YES ( ) NO ( ) Not articulated

Notes:

As indicated in the proposal, multiple federal and academic resources and associated partnerships are are leveraged, including academic, NOAA Damage Assessment, Remediation, and Restoration Program, Ecosystem Impacts of Oil and Gas Inputs to the Gulf (ECOGIG) research consortium, USGS, BOEM, and NOAA OER.

5. Delivering Results and Measuring Impacts

(●) YES ( ) NO

Notes:

As stated in the proposal, this work will track the success of direct restoration techniques while continuously monitoring the environmental conditions and natural resources over broad temporal and spatial scales. After successful restoration and continued protection from future damage, these coral habitats could provide ecosystem services for decades. The proposed work also has broad applications to understanding the GoM-wide ecosystem, making trophic connections from the Gulf-state watersheds to deep-sea environments.

E. Meeting Commitments and Tracking and Measuring Progress

1. Does the proposal articulate how it will meet and achieve its commitments?

(●) YES ( ) NO ( ) Not articulated

2. Does the proposal have a plan for tracking and measuring progress?

(●) YES ( ) NO

Notes:

As indicated in the proposal, progress tracking is integral in outlined specific objectives and detailed field sampling. Standard scientific protocol for multidisciplinary science cruises includes post-cruise reports that document activities, progress, and successes during field missions. These reports were planned as a required and customary mechanism for tracking and progress measurement. The planned use of research vessels and related outreach and expedition public web pages through NOAA OER, and documentation through progress reports to NOAA for their facilities records are also required. In addition, tracking and measurement of progress are a requirement for government contracts. As outlined on page 4 of the proposal budget narrative, an Interagency Agreement (IA) between USGS and BOEM and USGS subcontracts with academic

F. Proposal Emphasis Areas

Does the submission describe how the proposed project or program addresses the following four considerations:

1. Is the proposed activity **foundational** in the sense that the project or program forms an initial core step (or steps) in addressing a significant ecosystem issue, and can future activities be tiered to substantially increase the benefits?

- (●) YES
- ( ) NO
- ( ) Not articulated

Notes:

As stated in the proposal, this will be the first project to use environmental sequencing to assess biological communities adjacent to deep-sea corals, from microbes to macrofauna, and provide baseline data for future restoration and management decisions. Although restoration in the deep-sea is implicitly risky, this work will lay the foundation for future directed restoration activities. Direct restoration of deep-sea corals has never been conducted to date. This restoration proposal will provide information on technical, scientific lessons that will benefit future restoration activities in deep-sea corals, including assisting with scaling of future efforts. The proposed work will help elucidate the recovery of impacted deep-sea coral habitats

2. Will the proposed activity be **sustainable** over time?

- (●) YES
- ( ) NO
- ( ) Not articulated

Notes:

As stated in the proposal, this study will provide a unique and future-focused approach to assessing the recovery and restoration of impacted deep-sea coral habitats that is applicable to both shallow and deep-sea sediments. The taxonomic and environmental data obtained through traditional methods will provide a continuation of discerning recovery trajectories of impacted communities. The restoration component will provide valuable information on the success of direct restoration which will assist with the expanding the scope and scale of this initial effort. It will also establish a monitoring program at key sites that will be invaluable in the event of future accidents. Future use of project results will include direct utilization within

3. Is the proposed activity **likely to succeed**?

- (●) YES
- ( ) NO
- ( ) Not articulated

Notes:

As indicated in the proposal, though offshore research in the deep-sea is inherently difficult, the proposed science team is highly experienced in deep-sea research and has worked together, in most cases, for over a decade, and produced several publications resulting from this work. This professional experience shared between both scientists and their utilization of the complex research platforms including vessels and underwater vehicles provides a high level of experience that will greatly enhance the likelihood of project success. Regardless of specific individual accomplishments, broader results (including negative results) will be guaranteed to benefit future restoration efforts and monitoring activities.

4. Does the proposed activity **benefit** the human **community**?
(examples of benefits may include, but are not limited to: how a project will utilize local workers, how a project will benefit geographically or socially vulnerable communities, how a project will benefit the natural resources critical to natural-resource dependent industries such as fisheries, tourism, etc.)

- (●) YES
- ( ) NO
- ( ) Not articulated

Notes:

As indicated in the proposal, Gulf-area young investigators, undergraduates, and graduate students will be actively recruited to participate and contribute to this study. The outreach activities described on page 13 will provide educational opportunities to Gulf-area communities. The study also involves scientists from 2 Gulf States (Florida and Louisiana). Deep-sea corals are directly tied to human activities within the coastal zone and upper watershed. Thus, healthy coastal habitats will directly influence the health of the deep-sea coral habitats. Deep-sea coral habitats provide several ecosystem services including provision of habitat and refuges for several species. The sponsor notes that as fishing activities expand to deeper waters, understanding the importance of deep-sea corals in serving as refuges will be critical.