

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
MISSISSIPPI STATE EXPENDITURE PLAN  
2017 AMENDMENT

Submitted Pursuant to the  
Oil Spill Impact Component of the RESTORE  
Act 33 U.S.C. § 1321(t)(3)

Approved April 2018

## Table of Contents

Introduction.....	1
Designated State Entity.....	3
Points of Contact.....	3
Section I: State Certification of RESTORE Act Compliance.....	4
Certifications of RESTORE Act Compliance.....	4
Process Used to Verify Compliance .....	4
2017 Results of the Process Used to Verify Compliance .....	5
Section II: Public Participation Statement .....	9
Section III: Financial Integrity.....	9
Conflict of Interest .....	14
Section IV: Overall Consistency with the Goals and Objectives of the Comprehensive Plan .....	14
Section V: Projects, Programs, and Activities .....	15
Activity #1: Mississippi Gulf Coast Water Quality Improvement Program.....	17
Activity #2: Pascagoula Oyster Reef Complex Relay and Enhancement.....	17
Activity #3: Compatibility, Coordination, and Restoration Planning.....	17
Activity #4: Gulf of Mexico Citizen Led Initiative .....	19
Activity #5: Remote Oyster Setting Facility.....	24
Activity #6: Coastal Headwaters Land Conservation Program .....	28
Activity #7: Round Island Living Shoreline Demonstration and Protection Project (Planning) .....	33

## Introduction

### *Overview of the Oil Spill*

On or about April 20, 2010, the mobile offshore drilling unit Deepwater Horizon, which was being used to drill a well for BP Exploration and Production, Inc. (BP) in the Macondo prospect (Mississippi Canyon 252 – MC252), experienced an explosion, caught fire, and subsequently sank in the Gulf of Mexico (the Gulf). This incident resulted in the discharge of oil and other substances into the Gulf from the rig and the submerged wellhead. The Deepwater Horizon oil spill (Spill) is the largest maritime oil spill in U.S. history. The Spill discharged millions of barrels of oil over a period of 87 days. In addition, well over one million gallons of dispersants were applied to the waters of the Spill area in an attempt to disperse the spilled oil. An undetermined amount of natural gas was also released to the environment as a result of the Spill. After several failed attempts to stop the release of oil, the well was declared “sealed” on September 19, 2010.

As a result of civil and criminal settlements with the parties responsible for the Spill, the state of Mississippi (Mississippi) has and will continue to receive funding from several sources to restore or benefit the natural resources or the economy of Mississippi, including, but not limited to funding received through the following: (1) the Oil Pollution Act of 1990 (OPA) and the corresponding Natural Resource Damage Assessment (NRDA); (2) the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE Act); and (3) the National Fish and Wildlife Foundation (NFWF) Gulf Environmental Benefit Fund (GEBF).

The Mississippi Department of Environmental Quality (MDEQ) is the designated natural resource trustee under OPA-NRDA and the Governor’s designee for the RESTORE Act and NFWF GEBF for Mississippi.

### *RESTORE Act*

On July 6, 2012, the President signed into law the RESTORE Act, Subtitle F of Public Law 112-141. The RESTORE Act makes available 80% of the Clean Water Act (CWA) civil and administrative penalties paid by the responsible parties for the Spill (i.e., BP and Transocean) for programs, projects and activities that restore and protect the environment and economy of the Gulf Coast region through the Gulf Coast Restoration Trust Fund established in the U.S. Department of the Treasury (Treasury). Within the RESTORE Act, there are five funding components (commonly referred to as “buckets”), which make funds available to each of the Gulf States in accordance with certain legal parameters. These components are:

- Direct Component (Bucket 1)
- Comprehensive Plan Component (Bucket 2)
- Oil Spill Impact Component (Bucket 3)
- National Oceanic and Atmospheric Administration (NOAA) Science Program (Bucket 4)
- Centers of Excellence Research Grants Program (Bucket 5)

The Oil Spill Impact Component, also referred to as Bucket 3, accounts for 30% of the funds available in the Gulf Coast Restoration Trust Fund. In accordance with the requirements of the RESTORE Act and as set out in the allocation regulation at 40 CFR 1800.500, the state of Mississippi will receive 19.07% of the total allocation of the Oil Spill Impact Component. The amount currently available to Mississippi under the Oil Spill Impact Component is approximately \$71 Million. The RESTORE Act requires Mississippi, through MDEQ, to prepare a Mississippi State Expenditure Plan (MSEP) describing each activity, project, or program for which Mississippi seeks funding under the Oil Spill Impact Component.

As defined in 31 C.F.R. § 34.503, the MSEP includes a narrative description for each activity, project, or program for which Oil Spill Impact Component funding is being sought. The narrative description for each activity in the MSEP contains the following information:

- The need, purpose, and objectives of the activity;
- How the activity is eligible for funding and meets all requirements of § 34.203 and § 34.503;
- Location of the activity;
- Budget for the activity;
- Milestones for the activity;
- Projected completion dates for the activity;
- Criteria MDEQ will use to evaluate the success of each activity in helping restore and protect the Gulf Coast Region;
- If funding has been requested from other sources, including other components of the Act, the plan identifies the source, states how much funding was requested, and provides the current status of the request;
- How the activities in the plan contribute to the overall economic and ecological recovery of the Gulf Coast; and
- How each activity, that would restore and protect natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, coastal wetlands or the economy of the Gulf Coast, is based on the best available science.

New and/or amended MSEP(s) may be written as additional funds become available and as additional projects are identified for funding.

#### *Eligible Activities for the Oil Spill Impact Component*

The RESTORE Act dedicates 80% of any civil and administrative penalties paid under the Clean Water Act by responsible parties in connection with the Deepwater Horizon oil spill to the Gulf Coast Ecosystem Trust Fund or ecosystem restoration (environmental), economic recovery, and tourism promotion in the Gulf Coast region. The RESTORE Act differs from other restoration funding sources (i.e., NFWF, NRDA) in that it specifically allows and anticipates that restoration projects will be developed for the restoration of natural resources and the restoration of the economy, both of which were affected as a result of the Spill.

The eligible activities for the Oil Spill Impact Component cover both ecological and economic projects. The RESTORE Act defines eligible activities for which the Oil Spill Impact Component funds may be used. The eligible activities, projects, and programs as defined in 31 C.F.R. § 34.203 are:

1. Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches and coastal wetlands of the Gulf Coast Region;
2. Mitigation of damage to fish, wildlife, and natural resources;
3. Implementation of a federally-approved marine, coastal, or comprehensive conservation management plan, including fisheries monitoring;
4. Workforce development and job creation;
5. Improvements to or on state parks located in coastal areas affected by the Deepwater Horizon Oil Spill;
6. Infrastructure projects benefitting the economy or ecological resources, including port infrastructure;
7. Coastal flood protection and related infrastructure;
8. Planning assistance;
9. Administrative costs;
10. Promotion of tourism in the Gulf Coast Region, including recreational fishing; and
11. Promotion of the consumption of seafood harvested from the Gulf Coast Region.

## **Designated State Entity**

The State of Mississippi, Office of the Governor, is the entity designated under the Oil Spill Impact Component of the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2012 (RESTORE Act) to develop the required State Expenditure Plan. The Office of the Governor appointed Gary C. Rikard, the Executive Director of the Mississippi Department of Environmental Quality, as his appointee.

## **Points of Contact**

Gary C. Rikard – Executive Director  
Mississippi Department of Environmental Quality  
515 E. Amite Street, Jackson, Mississippi, 39201  
T: (601) 961-5001  
F: (601) 961-5275  
Email: [grikard@mdeq.ms.gov](mailto:grikard@mdeq.ms.gov)

Chris Wells – Chief of Staff, Interim Director of the  
Office of Restoration  
Mississippi Department of Environmental Quality  
515 E. Amite Street, Jackson, Mississippi, 39201  
T: (601) 961-5545  
F: (601) 961-5275  
Email: [cwells@mdeq.ms.gov](mailto:cwells@mdeq.ms.gov)

## **Section I: State Certification of RESTORE Act Compliance**

### **Certifications of RESTORE Act Compliance**

The Mississippi Department of Environmental Quality hereby certifies to the following:

- Pursuant to the RESTORE Act, 33 U.S.C. § 1321(t)(3)(B)(i)(I), the MSEP includes projects, programs, and activities which will be implemented with the Gulf Coast Region and are eligible for funding under the RESTORE Act.
- Pursuant to the RESTORE Act, 33 U.S.C. § 1321(t)(3)(B)(i)(II), the projects, programs, and activities in the MSEP contribute to the overall economic and ecological recovery of the Gulf Coast.
- Pursuant to the RESTORE Act, 33 U.S.C. § 1321(t)(3)(B)(i)(III), the MSEP conforms to and is consistent with the goals and objectives of the Comprehensive Plan adopted by the RESTORE Council.
- Pursuant to the RESTORE Act, 33 U.S.C. § 1321(t)(2)(B)(i), the projects and programs that would restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, coastal wetlands, and economy of the Gulf Coast included on the MSEP will be based on the best available science as defined by the RESTORE Act.
- Pursuant to the RESTORE Act, 33 U.S.C. § 1321(t)(3)(B)(ii), not more than 25% of the funds will be used for infrastructure projects for the eligible activities described in 33 U.S.C. § 1321(t)(1)(B)(i)(VI-VII).
- Issues crossing Gulf State boundaries have been evaluated to ensure that a comprehensive, collaborative ecological and economic recovery is furthered by the MSEP.

### **Process Used to Verify Compliance**

The development of the MSEP involves a series of activities that create an iterative process while maintaining transparency to stakeholders. This process is divided into five phases with distinct tasks occurring in each phase. The activities occurring within each phase are designed to achieve the following criteria:

- Identify eligible projects, programs and activities for inclusion on the MSEP;
- Ensure that eligible projects, programs and activities included on the MSEP contribute to overall ecological and economic recovery of the Gulf Coast;
- Ensure the MSEP takes into consideration and is consistent with the goals, objectives and commitments of the RESTORE Council's Comprehensive Plan; and
- Promote funded projects to be as successful and sustainable as possible.

The planning effort was broken down into five phases:

- Phase 1: Establishing a Foundation
- Phase 2: Project Contribution, Benefit, and Coordination
- Phase 3: Project Filtering

- Phase 4: Project Vetting
- Phase 5: Project Selection and MSEP development

This five phase process was implemented under a Planning State Expenditure Plan approved by the chairperson of the Gulf Coast Ecosystem Restoration Council in November 2015.

## **2017 Results of the Process Used to Verify Compliance**

### **Phase I: Establishing a Foundation**

In Phase I, MDEQ, on behalf of the State of Mississippi, worked to establish a foundation for the MSEP. The RESTORE Act requires that each program, project, and activity included on the MSEP be consistent with the goals and objectives of the Comprehensive Plan developed by the RESTORE Council. Stakeholder groups were engaged in July 2016 to identify priority aims for the MSEP. By establishing foundational components, MDEQ ensures that the MSEP:

- Contributes to the overall ecological and economic recovery of the Gulf Coast;
- Takes into consideration and is consistent with the goals and objectives of the RESTORE Council's Comprehensive Plan; and
- Aligns process and project selection with MDEQ's commitment to transparency.

Stakeholder engagement began by asking the stakeholder groups to identify their priority aims from the established goals of the Comprehensive Plan. By identifying priority aims, stakeholders helped to define the focus of the MSEP. In response to which aim or aims should be prioritized for the MSEP, the majority responded that the MSEP should focus on two of the goals identified in the RESTORE Council's Comprehensive Plan:

1. Restore Water Quality – Restore and protect water quality of the Gulf Coast region's fresh, estuarine, and marine waters.
2. Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

As planning commenced for the 2017 MSEP Amendment, MDEQ revisited these goals with the stakeholder community. The response received was that the priorities were still consistent with the priorities stakeholders identified in 2016. The stakeholder community also requested that the 2017 MSEP Amendment consider more elements of community resilience.

### **Phase II: Project Contribution, Benefit, and Coordination**

Phase II utilized the initial stakeholder input to engage a broader audience to identify the environmental and economic contributions and benefits a project can provide toward the identified priority aims of the MSEP. Project contributions and benefits were developed based on the RESTORE Act eligible activities, MSEP requirements, the Comprehensive Plan, and a review of existing restoration plans to further ensure coordination and compliance. For this exercise, MDEQ defined a contribution as an action that a project can take to meet the prioritized goal and a benefit as the outcome of a contribution. In 2016, MDEQ utilized an online community engagement platform called MetroQuest to collect public input to identify what contributions and benefits a project should make in order to be included on the MSEP. MDEQ utilized the 2016 results during the 2017 planning process.

Utilizing MetroQuest, the public was asked to prioritize various contributions. Two contributions received the highest average rank positions. They were:

1. Improve marine ecosystems (Average position: 2.13; Times Ranked: 158).
2. Decrease water pollution (Average position: 2.18; Times Ranked: 148).

The corresponding highest ranking benefit for both contributions was:

1. Promote ecosystem health.

The contributions and benefit align with the following RESTORE Council Comprehensive Plan objectives:

- Restore, improve, and protect water resources.
- Protect and restore living and coastal marine resources.
- Promote community resilience.

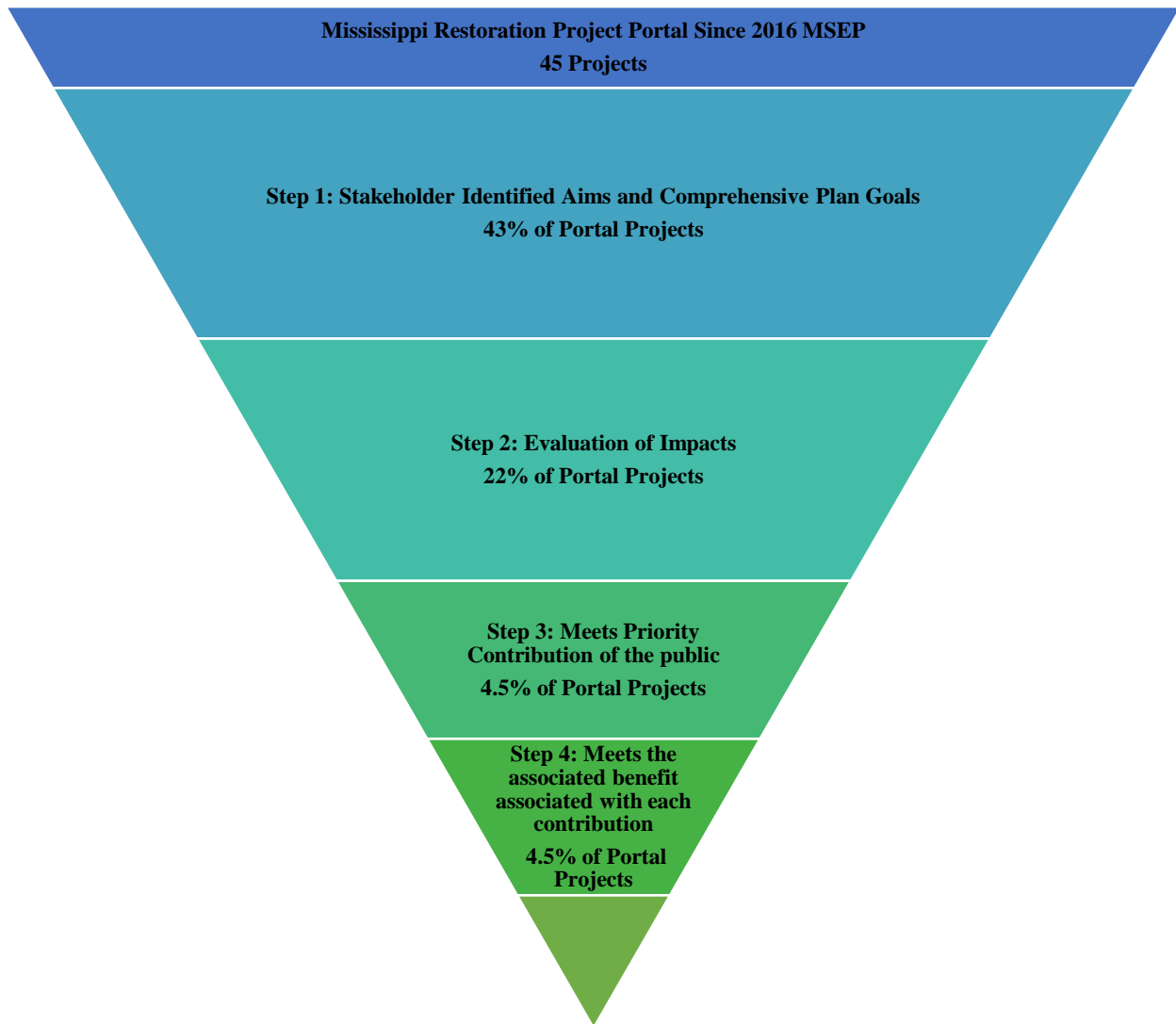
Additionally, the planning process also considered the priorities, outcomes, and benefits of current restoration activities across the coastal restoration landscape in Mississippi. This coordination and synergy supports the development and implementation of restoration projects in order to achieve maximum restoration benefit. Where possible, additional resources can be used to leverage and add resiliency which builds and sustains communities with capacity to adapt to short- and long-term changes.

### Phase III: Project Filtering

New project ideas submitted to the Mississippi Restoration Project Idea Portal since the 2016 MSEP was approved were filtered through the process described below, including currently implemented projects. This filtering process is represented in the following table and figure:

Process	Factors Considered
Step 1: Stakeholder Identified Aims and Initial Comprehensive Plan Goals	Project ideas must <i>Restore Water Quality</i> and <i>Restore and Revitalize the Gulf Economy</i> .
Step 2: Evaluation of Impacts	Evaluation of project description and supporting documentation towards <i>Restoring Water Quality</i> and <i>Restoring and Revitalizing the Gulf Economy</i> .
Step 3: Meets Priority Contribution of the Public	A project idea must meet both prioritized contribution criteria of decreased water pollution and improve marine ecosystems.
Step 4: Meets the Associated Benefit Associated with Each Contribution	A project idea must promote the prioritized benefit of ecosystem health.
Step 5: Supports Community Resilience	Evaluation of existing and proposed project ideas towards <i>Community Resilience</i> .





Project ideas made it through the filtering process if they were in line with the aims that were selected during Phase I of the development of the 2017 MSEP Amendment: *Restore Water Quality* and *Restore and Revitalize the Gulf Economy*. In order to be proposed for selection, project ideas must have checked both the water quality and economy identifier boxes during submission into the Mississippi Restoration Project Portal. Project ideas were eliminated if they did not address water quality or restoring and revitalizing the economy because they were not aligned with the aims selected for the 2017 MSEP Amendment.

In Step 5, existing and newly proposed restoration projects were evaluated to determine if additional resilience elements could be added to support building and sustaining communities with capacity to adapt short- and long-term changes.

#### Phase IV: Project Vetting

Following the project filtering process, remaining project ideas were evaluated exclusively for eligibility under the Oil Spill Impact Component; specifically: 1) eligibility of proposed activities with eligibility requirements of the RESTORE Act; and 2) review of proposed activity against applicable regulations,

federal law compliance and OMB guidance. Preliminary environmental compliance reviews were also conducted with applicable agencies.

The remaining project ideas conformed to the eligibility requirements described above.

#### Phase V: Project Selection

After project vetting, the following projects are proposed.

#### Approved 2016 MSEP Projects (budget additions to support actions described in 2016 MSEP)

1. Mississippi Gulf Coast Water Quality Improvement Program
  - Increase of \$4 million to bolster existing resilience elements of wastewater and stormwater improvement repairs, monitoring efforts, and evaluation of project outcomes.
2. Pascagoula Oyster Reef Complex Relay and Enhancement
  - Increase of \$600,000 to bolster existing resilience elements of water quality monitoring, biological assessment, and/or benthic habitat mapping to enhance the resilience of this project and future outcomes from this project.
3. Compatibility, Coordination and Restoration Planning
  - Increase of \$500,000 additional funds for future project selection, vetting, and SEP development.

#### 2017 Proposed Projects

4. Gulf of Mexico Citizen Led Initiative (GMCLI) – Development of a Mobile Application for Marine Assessment (MAMA)
  - This is a new project proposed for the 2017 MSEP Amendment. The purpose of this project is to develop of mobile application for marine assessment (MAMA) for documenting issues regarding the marine environment, specifically water quality conditions, recreational and commercial activities, and to involve Mississippi residents and visitors in scientific data gathering.
5. Remote Oyster Setting Facility
  - This is a new project proposed for the 2017 MSEP Amendment. The purpose of this project is to fund the planning, construction and operations activities associated with a new large-scale oyster setting facility. This project will result in significant increases in oysters being placed in harvestable and non-harvestable waters enhancing and restoring the oyster fishery, the commercial oyster economy, and improving water quality.

#### Resilience Elements added to Current Investments

6. Coastal Headwaters Land Conservation Program
  - Land conservation is a currently funded program, leveraging NFWF-GEBF, NRDA, and RESTORE funding. The purpose of this project would be to add resilience to the existing coastal headwaters land conservation program by purchasing and/or preserving lands adjacent to, and/or targeted around conserved lands to decrease development pressure,

improve water quality and quantity to downstream systems, increase habitat areas, and enhance habitat connectivity.

7. Round Island Restoration Area Expansion and Living Shoreline Demonstration

- Round Island is a beneficial use (BU) site currently being implemented under a NFWF-GEBA Marsh Restoration project. The purpose of this project is to plan, engineer, design, and permit a series of living shorelines that will provide water quality improvement of turbidity reduction, enhance recreational fishing opportunities, and add protection and resiliency to the project as well as expand, plan, engineer, design, and permit a larger restoration footprint for Round Island.

## **Section II: Public Participation Statement**

There were multiple phases of public engagement for the 2017 MSEP Amendment in order to gather the appropriate public participation necessary to conform with the public participation requirements outlined in 31 C.F.R. § 34.503(g). In accordance with 31 C.F.R. § 34.503(g), the MSEP will be available for public review and comment for a minimum of forty-five (45) days. Each activity on the MSEP will only be adopted after consideration of all meaningful input. MDEQ made the MSEP available for public comment and review in a manner that is consistent with other MDEQ-administered public comment periods related to the Deepwater Horizon oil spill. See the attached “The State of Mississippi’s Response to Comments Regarding the 2017 Amended Mississippi State Expenditure Plan (MSEP)” for additional information.

## **Section III: Financial Integrity**

On behalf of the State of Mississippi, MDEQ understands its fiduciary responsibilities under the RESTORE Act and is committed to maintaining the highest level of fiscal accountability and transparency to assure the public and Congress that funds have been managed appropriately to further the purposes of the RESTORE Act. These responsibilities include RESTORE Act project administration functions, such as maintaining financial records and ensuring complete and accurate reporting through project oversight. MDEQ’s financial system was developed around the basic principles of sound financial management. These principles are internationally accepted accounting and financial management practices recognized worldwide by leading public and private sector organizations. The basic principles of sound financial management include, among others, principles of transparency, internal checks and balances, and independent external auditing.

***Transparency*** – MDEQ is committed to maintaining transparency with the public and for reporting on RESTORE Act projects, programs, and activities.

***Internal checks and balances*** – To maintain effective controls, MDEQ properly segregates duties among state personnel performing financial functions for RESTORE Act projects, programs, and activities.

***Independent external auditing*** – All state agencies are subject to annual audits to be conducted by the Office of the State Auditor or its contracted designee as prescribed by state law. Agency audits are performed at the fund level in conjunction with the State Auditor’s annual audit of the State’s Comprehensive Annual Financial Report (CAFR).

These principles of sound financial management are designed to:

- Prevent corruption and reduce or eliminate financial risk and loss;
- Ensure that funds are spent in accordance with the respective grant awards, state law and federal law, as applicable;
- Ensure that personnel responsible for implementing the activities in the project work plans have the resources needed to support the job; and
- Assist state personnel in spending funds efficiently and effectively and report expenditures accurately.

MDEQ is responsible for:

- Fiscally managing and safeguarding RESTORE Act project funds;
- Disbursing funds to sub-recipients in a timely manner for reimbursement of eligible project expenditures;
- Keeping accurate and up-to-date records of all financial transactions related to project activities;
- Providing accurate financial reports as requested or required;
- Assisting state personnel with financial planning, budgeting, monitoring, and evaluation; and
- Assisting state personnel in understanding and complying with financial policies and procedures needed to ensure efficient and effective stewardship of RESTORE Act funds.

Effective financial operations depend on clear policies and procedures for different areas of activity, such as:

- Cash management policies (e.g., project budgets, requests for funds, and disbursement of funds);
- Personnel policies;
- Policies regarding delegation of signature authority for expenditures or reimbursements in excess of established thresholds;
- Purchasing and procurement laws, regulations, and policies;
- Policies regarding reimbursement of administrative expenses;
- Policies regarding supporting documentation required for disbursement of funds; and
- Policies establishing financial reporting requirements and schedules, including documented review processes by appropriate supervisory personnel.

### **Financial Controls**

Financial controls are designed to enable state agencies to accomplish fiduciary responsibilities. These controls also reduce the risk of asset loss, ensure that RESTORE Act project documentation is complete and accurate, that financial reports are reliable, and ensure compliance with laws and regulations. A financial control system includes both preventative controls (designed to discourage errors or fraud) and detective controls (designed to identify an error or fraud after it has occurred).

Mississippi law requires each agency, through its governing board or executive head, maintain continuous internal audit covering the activities of such agency affecting its revenue and expenditures, and maintain an adequate internal system of pre-auditing claims, demands and accounts to ensure that only valid claims, demands and accounts will be paid (Miss. Code Ann. § 7-7-3(6)(d), (2016)). Consistent with the RESTORE Act and the MSEP, sub-recipients must operate and use resources with minimal potential for

waste, fraud, and mismanagement. The State's financial control system provides assurance that significant weaknesses that could affect the State's ability to meet its objectives would be prevented or detected in a timely manner.

Project management, other personnel, and those charged with governance will apply internal control processes that are designed to provide reasonable assurance in the reliability of project financial reporting. The system includes characteristics such as:

- Policies and procedures that provide for appropriate segregation of duties to reduce the likelihood of deliberate fraud;
- Personnel training materials that ensure employees are qualified to perform their assigned responsibilities;
- Sound practices to be followed by personnel in performing their duties and functions; and
- Proper authorization and recording procedures for financial transactions.

MDEQ's internal control system has been modeled after the Committee of Sponsoring Organizations (COSO) internal control framework and the following five inter-related components. Annually, each state agency is required to certify it has performed an internal control risk assessment, identify weaknesses, and describe a corrective action plan, if applicable.

**Control Environment** – In Mississippi, responsibility for implementing internal controls at each state agency begins with the chief executive officer and extends to everyone in the agency. Each agency director personally holds those in leadership positions responsible for helping to design, implement, maintain, and champion an internal control program that encompasses all agency fiscal programs and related activities. Each agency's chief financial officer shares this leadership role, yet ultimate accountability remains with the agency head.

Only qualified, competent individuals are employed. These personnel are adequately trained to carry out their responsibilities and are required to explicitly and implicitly understand their responsibilities. State management provides its employees with the authority to perform the tasks assigned to them.

**Risk Assessment** – As part of establishing proper controls and procedures, an assessment is performed to identify, analyze, and manage risks relevant to achieving the state's goals and objectives for RESTORE Act projects. This assessment identifies internal and external events or circumstances that could adversely affect the state's ability to carry out its fiduciary responsibilities. Identified risks according to potential impact on the RESTORE Act projects and the likelihood of occurrence will be considered. The MSEP is considered in performing the risk assessment, incorporating the goals and objectives for the RESTORE Act activities while assessing the control environment, the overall financial management process, the role of the accounting system, and other financial management activities.

Identification of component systems comprising the complete accounting system is also included in the risk assessment process. Transaction cycles were identified and considered along with inherent risks. These will be continuously reviewed and strategies will be updated as needed to manage the risks.

**Control Activities** – MDEQ's internal control activities include written policies, procedures, techniques, and mechanisms that help ensure management's directives are carried out in compliance with the RESTORE Act criteria. Control activities help identify, prevent, or reduce the risks that can impede accomplishment of state objectives. Control activities occur throughout the financial department, at all levels and in all functions; control activities include things such as approvals, authorizations, verifications, reconciliations, documentation, separation of duties, and safeguarding of assets.

For each transaction cycle identified in the risk assessment, the flow of information through the process and the internal control activities taken will be documented and analyzed.

Documentation will include organizational charts, standard operation procedures, manuals, flowcharts, decision tables, questionnaires, and/or review checklists.

**Communication and Information** – The state’s financial system provides adequate processes and procedures to ensure that each agency or department has relevant, valid, reliable, and timely communications related to internal and external events to effectively run and control its operations. Agency directors are able to obtain reliable information to make informed business decisions, determine their risks, and communicate policies and other important information to those who need it.

Communication is vital to effective project management, and MDEQ’s financial information system has mechanisms in place to properly capture and communicate RESTORE Act project financial data at the level appropriate for sound financial management. Policy manuals, accounting and financial reporting manuals, internal memoranda, verbal directives, and management actions are a few of the means of communicating across state agencies.

**Monitoring** – Monitoring of the internal control system will be performed to assess whether controls are effective and operating as intended. Monitoring is built into normal, recurring operations, is performed on a real-time basis, reacts dynamically to changing conditions, and is ingrained in each state agency. Ongoing monitoring occurs through routine managerial activities such as supervision, reconciliations, checklists, comparisons, performance evaluations, and status reports. Monitoring may also occur through separate internal evaluations (e.g., internal audits/reviews) or from external evaluations (e.g., independent audits, comparison to industry standards, surveys). Any deficiencies found during monitoring will be reported to the appropriate authority.

MDEQ requires prompt evaluation of any findings and recommendations. Formal procedures are documented for responding to findings and recommendations. Those that generate action items are properly outlined for timely response and resolution. Responsible parties are required to complete action items to correct or otherwise resolve the deficiencies within an established timeframe. The monitoring process also includes analysis of whether exceptions are reported and resolved quickly.

### **Accountability**

While each state employee has personal internal control responsibility, the state director holds ultimate responsibility and assumes ownership for internal control over financial reporting of RESTORE Act funds. Other directors and managers support the state’s internal control philosophy, promote compliance, and maintain control within their areas of responsibility. Chief financial officers have key oversight and policy enforcement roles over fiscal matters. Other state personnel hold lead responsibility for compliance with nonfinancial aspects of laws, directives, policies, procedures, and codes of ethics.

The state director has designated a senior manager as the RESTORE Act project manager specialist who is responsible for coordinating the overall state-wide effort of evaluating, improving, and reporting on internal controls over RESTORE Act project management. A risk assessment of project internal control systems will be performed annually. If the risk assessment indicates a high level of risk associated with the financial control system, internal controls will be evaluated. Any serious deficiencies will be reported to the appropriate authority.

### **Key Controls**

MDEQ applies key controls for financial operating functions that serve as strategic risk mitigation tools within each area. These key controls are developed around financial management policies of segregation of duties, systematic reviews and reconciliations, and documented approval processes. These key controls serve as the framework for financial processes used in the flow of information for capturing and reporting financial data.

#### **Other Financial Integrity Mechanisms**

MDEQ has developed detailed written policies and procedures as part of its financial control systems and financial control system plan. The plan, policies, and procedures provide assurance that RESTORE Act funds are being safeguarded and that applicable statutes, rules, and regulations are being followed while also ensuring that the goals and objectives of the RESTORE Act are being met.

The financial control system plan is more than just a list of procedures or flowcharts of how activities operate. Rather, the plan is a comprehensive document that encompasses all components of internal controls. Likewise, the plan documents the financial control structure as it relates to those functions. Key financial integrity mechanisms of internal control over financial reporting are described in the following paragraphs.

**Risk assessments of sub-recipients** – Pursuant to the Uniform Guidance requirements in 2 C.F.R. § 200, MDEQ will emphasize components of sub-recipients' financial system internal checks and balances that address fraud, waste, and performance. MDEQ's financial management system is designed for the prevention of fraud, waste, and abuse. As such, risk assessments of all sub-recipients' financial management systems will be conducted before awarding RESTORE funding.

**Project budgets** – Project budgets represent the financial plans for projects throughout their lifespans. The budgets match planned expenditures with revenues that the state expects to receive, which is essential for effective cash flow planning and management. Budgets also help us prevent the misuse of project funds and control spending.

**Segregation of duties** – MDEQ employs several levels of control to achieve proper segregation of duties in financial processes. Departmental controls allow for proper segregation among functions related to the recording and reporting of project transactions. Supervisory approval is required for all expenditures by personnel independent of the recording process. Stewardship over project funds is essential for proper fiduciary accountability, and the State has established the framework to achieve this component of internal control.

**Safeguarding of assets** – Access to financial project information is restricted to essential personnel. Passwords and other physical safeguards are employed by the State to restrict access to financial data. By restricting access, risk of misappropriation and fraud is reduced because only the personnel who will be working on the financial data for the projects have access to those functions. Regular backups of financial information are done and stored off-site to minimize loss of data due to an unforeseen occurrence.

**Sub-recipient monitoring** – MDEQ developed a process for sub-recipient monitoring using an effective risk assessment model. As part of the initial risk assessment process, sub-recipients are required to complete an Organizational Self-Assessment (OSA) questionnaire and provide copies of standard financial policies and procedures that the state evaluates as part of designing the sub-recipient monitoring program. The OSA is required to be updated annually by each sub-recipient. On-site assistance and reviews for a sub-recipient based on appropriate risk levels will be provided throughout the life of the projects. MDEQ will require and review financial and progress reports for accuracy, completeness, and alignment with RESTORE goals. Budget reports may also be required for comparison to actual expenditures, in detail if necessary.

MDEQ may also employ other financial integrity mechanisms if necessary or for specific RESTORE Act project types. Modifications will be based on updated risk assessments for the RESTORE Act financial control system.

### **Conflict of Interest**

The processes that MDEQ uses to prevent conflicts of interest in the development and implementation of the MSEP, as required by 31 C.F.R. § 34.503(b)(3), are guided by Mississippi law. Under Mississippi Code § 25-4-1 *et seq.*, “it is the policy of the state that public officials and employees be independent and impartial, that governmental decisions and public policy be made on the proper channels of the government structure; that public office not be used for private gain other than the remuneration provided by law; that there be public confidence in the integrity of government; and that public officials be assisted in determinations of conflicts of interest.”

Further, MDEQ requires, where applicable, the completion of a non-collusion and conflict of interest affidavit certifying that there are no present or currently planned interests (financial, contractual, organizational, or otherwise) relating to the work to be performed under any contract resulting from the proposed work that would create any actual or potential conflict of interest (or apparent conflicts of interest) (including conflicts of interest for immediate family members: spouses, parents, children) that would impinge on its ability to render impartial, technically sound, and objective assistance or advice or result in it being given an unfair competitive advantage. MDEQ also requires sub-recipients and contractors to notify MDEQ immediately of any potential or actual conflicts that may arise. If any potential or actual conflict cannot be resolved to MDEQ’s satisfaction, MDEQ reserves the right to terminate the sub-award agreement or contract in place pursuant to the Termination for Convenience clause of the sub-award agreement or contract.

## **Section IV: Overall Consistency with the Goals and Objectives of the Comprehensive Plan**

Mississippi’s 2017 MSEP Amendment focuses on two of the goals identified in the Comprehensive Plan:

- Restore Water Quality – Restore and protect water quality of the Gulf Coast region’s fresh, estuarine, and marine waters.
- Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

Mississippi’s 2017 MSEP Amendment focuses on three objectives identified in the Comprehensive Plan:

- Restore, improve, and protect water resources.
- Protect and restore living and coastal marine resources.
- Promote community resilience.



## Section V: Projects, Programs, and Activities

	<i>Project Title</i>	<i>Estimated Cost</i>	<i>Infrastructure (Yes/No)</i>	<i>Start Date</i>	<i>End Date</i>	<i>Primary Eligible Activity (number 1-11; see section 4.1.1 of Submittal Guidelines)</i>	<i>Informed by Best Available Science (Yes/No)</i>	<i>Status</i>
1	Mississippi Gulf Coast Water Quality Improvement Program	\$49 Million	No	08/01/2018	07/31/2023	1	Yes	Activity Approved (2016 Initial MSEP). Activity Amended (2017 MSEP Amendment) to add \$4 Million.
2	Pascagoula Oyster Reef Complex Relay and Enhancement	\$4.1 Million	No	08/01/2018	07/31/2023	1	Yes	Activity Approved (2016 Initial MSEP). Activity Amended (2017 MSEP Amendment) to add \$600,000.
3	Compatibility, Coordination, and Restoration Planning	\$1.8 Million	No	08/01/2018	07/31/2022	8	No	Activity Approved (2016 Initial MSEP). Activity Amended (2017 MSEP Amendment) to add \$500,000.
4	Gulf of Mexico Citizen Led Initiative (GMCLI)	\$1.9 Million	No	08/01/2018	7/31/2023	1	Yes	New Activity (2017 MSEP Amendment)

5	Remote Oyster Setting Facility	\$9.36 Million	No	01/01/2019	12/31/2023	1	Yes	New Activity (2017 MSEP Amendment)
6	Coastal Headwater Land Conservation Program	\$8 Million	No	08/01/2018	12/31/2021	1	Yes	New Activity (2017 MSEP Amendment)
7	Round Island Living Shoreline Demonstration and Protection Project (Planning)	\$2.2 Million	No	08/01/2018	12/31/2020	8	Yes	New Activity (2017 MSEP Amendment)

## **Activity #1: Mississippi Gulf Coast Water Quality Improvement Program**

### **Project Summary**

The Mississippi Gulf Coast Water Quality Improvement Program was approved in the 2016 MSEP. This program will support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region through the implementation of water quality improvement projects. Activities within this program include implementation of new or repairing/upgrading existing stormwater and wastewater systems, systematic source tracking to identify sources and stressors of water quality impairment, and monitoring of implemented projects. The program will also provide support to increase the analytical capacity of MDEQ's South Regional Office (SRO) in order to establish microbial analytical capability for the benefit and enhancement of water quality across the Mississippi Gulf Coast. The Mississippi Gulf Coast Water Quality Improvement Program was approved in the 2016 MSEP. Additional information about the approved scope of work for this program can be found in the 2016 MSEP.

### **Project Modifications - 2017 MSEP Amendment**

The 2017 MSEP Amendment increases the program budget by \$4 million (100% implementation) to support activities approved in the 2016 MSEP (i.e., wastewater and stormwater improvement repairs, monitoring efforts, and evaluation of project outcomes). The additional funds being proposed for this activity would be used to support only the action or types of actions described in the 2016 MSEP.

## **Activity #2: Pascagoula Oyster Reef Complex Relay and Enhancement**

### **Project Summary**

The Pascagoula Oyster Reef Complex Relay and Enhancement project was approved in the 2016 MSEP. This project will support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region by relaying oysters from the currently non-harvestable Pascagoula Oyster Reef Complex (ORC) to harvestable reefs and enhancing the ORC. The oyster restoration and management project may include benthic habitat mapping, reef monitoring, and relay of oyster resources to increase productivity on harvestable reefs. Additional information about the approved scope of work for this program can be found in the 2016 MSEP.

### **Project Modifications - 2017 MSEP Amendment**

The 2017 MSEP Amendment increases the program budget by \$600,000 (100% implementation) to support activities of water quality monitoring, biological assessment, and/or benthic habitat mapping approved in the 2016 MSEP. The additional funds being proposed for this activity would be used to support only the action or types of actions described in the 2016 MSEP.

## **Activity #3: Compatibility, Coordination, and Restoration Planning**

### **Project Summary**

The Compatibility, Coordination, and Restoration Planning project was approved in the 2016 MSEP. This project will provide planning assistance to support MDEQ's coordinated restoration planning effort to maximize the effectiveness of coordination of restoration in the Gulf Coast Region and the development of new and/or amended State Expenditure Plan(s). Additional information about the approved scope of work for this program can be found in the 2016 MSEP.

**Project Modifications - 2017 MSEP Amendment**

The 2017 MSEP Amendment increases the program budget by \$500,000 (100% planning) to support activities approved in the 2016 MSEP. The additional funds being proposed for this activity would be used to support only the action or types of actions described in the 2016 MSEP.

The approved 2016 MSEP can be found at the following link:

[https://www.restorethegulf.gov/sites/default/files/SEP\\_MS\\_20170427.pdf](https://www.restorethegulf.gov/sites/default/files/SEP_MS_20170427.pdf)

## Activity #4: Gulf of Mexico Citizen Led Initiative

### Project Summary

This project will support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region through data collection efforts to yield information that resource management agencies can use to inform decisions regarding water quality, economically viable fish stocks, and ultimately track changes in the overall coastal ecosystem.

The Gulf of Mexico Citizen Led Initiative (GMCLI) will develop a mobile phone application for marine assessment (MAMA) that will be used to recruit citizens to gather coastal ecosystem health assessment data. The data collected from the MAMA application will be used to: 1) support a citizen based, real-time monitoring of water health of coastal ecosystems that documents and collects water quality conditions in all coastal marine environments, and 2) document and collect abundance and health of recreationally and commercially important fish species of interest to resource management agencies. Additionally, MAMA will allow Gulf coast citizens and visitors to a) upload photos, measurements, GPS locations and other data regarding specimens they have captured, observed, and identified b) submit photos of endangered/unusual specimens of fish and other marine creatures for identification, and c) document invasive species in Gulf waters. These data collection efforts will yield information that the Mississippi Department of Environmental Quality (MDEQ), the Mississippi Department of Marine Resources (MDMR), and other resource management agencies, can use to inform decisions regarding water quality, economically viable fish stocks, and ultimately track changes in the overall coastal ecosystem. The curated long-term data set would be available to researchers and resource managers for scientific management. A database of this type will be an invaluable resource for assessing changes in the health of the Mississippi Sounds marine and estuarine ecosystems.

This project will follow the development guidance of the Federal Crowdsourcing and Citizen Science Toolkit and employ the following steps:

1. Determine which data will be helpful to resource management;
2. Design the application (app) architecture to collect those data;
3. Build a community of app users to generate the data;
4. Manage the dataset structure and data availability to end users;
5. Seek support to sustain and improve data collection through continued development of the app as new users are suggested and the technology improves.

Activities may also include program oversight and management, development, coordination, and execution of the grant award between MDEQ and the RESTORE Council and the sub-award between MDEQ and any sub-recipients.

**Need:** Coastal environments are dynamic and varied in their diversity. There is a need for additional data collection efforts to yield information that resource management agencies can use to inform decisions regarding water quality, economically viable fish stocks, and ultimately track changes in the overall coastal ecosystem.

**Purpose:** The purpose of this project is to support data collection efforts to yield information that resource management agencies can use for decisions regarding water quality, economically viable fish stocks, and ultimately track changes in the overall coastal ecosystem.

**Objective:** Develop the mobile phone app, distribute the app to coastal residents and all other interested parties, and establish a database to store data on the coastal environment.

**Location:** This project will take place in the Gulf Coast Region.

**Timeline:** This project is anticipated to start 08/01/2018 and end 07/31/2023.

**Additional Information:** The project will be administered by MDEQ.

**Overall Economic or Ecological Contribution to the Recovery of the Gulf Coast:** This project will contribute to improving resource managers' understanding of coastal resources in Mississippi. Additionally, information collected by MAMA will inform resource managers of issues of water quality concerns which can help decision makers locate the appropriate sites for future restoration implementation. Improving the understanding of coastal resources will ultimately bolster sustainability of the region and contribute to economic recovery.

**Eligibility and Statutory Requirements:** This project is located in the Gulf Coast Region as defined by 31 C.F.R. § 34.2. This project qualifies as an eligible activity for Oil Spill Impact Component funding through 31 C.F.R. § 34.201(a) – restoration and protection of the natural resources, ecosystems, fisheries, marine, and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region, and 33 U.S.C. § 1321(t)(1)(B)(i)(I) of the RESTORE Act. The primary purpose of the project is restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region. This project will provide resource managers with additional data to inform decision making regarding Mississippi's coastal ecosystems.

#### **Comprehensive Plan Goals and Objectives:**

This project aligns with the following Comprehensive Plan goals:

- Restore Water Quality – Restore and protect water quality of the Gulf Coast region's fresh, estuarine, and marine waters; and
- Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

This project supports the following Comprehensive Plan objectives:

- Protect and Restore Living Coastal and Marine Resources;
- Promote Community Resilience; and
- Restore, Improve, and Protect Water Resources.

#### **Major Milestones:**

*Milestone – MAMA and Database Development.* The University of Mississippi (UM) and the Mississippi Department of Marine Resources (MDMR) will develop the MAMA application and database to receive, archive, and make data available.

*Milestone – Beta Testing.* Beta test the MAMA app.

*Milestone – Widespread Distribution.* Widespread distribution of MAMA will take place and data gathering will begin.

#### **Success Criteria/Metrics/Outcomes:**

The anticipated outcomes of the citizen led initiative include:

- Establishment of a long-term dataset of coastal ecosystem health;
- Engagement with the coastal stakeholder community in coastal ecosystem health; and

- Enhanced decision-making process to coastal ecosystem health concerns (i.e., phytoplankton blooms, sewage leaks, fish kills).

Activity	Anticipated Project Success Criteria/Metrics/ Outcomes:	Short-term outcome	Long-term outcome
Development and Beta Testing of MAMA	App development data  App released to select participants.	Bugs worked out in App development prior to widespread release.	App to move forward with widespread release.
Widespread Release of MAMA	App used by Mississippi Gulf Coast residents and visitors  Establishment of long-term dataset.  Metrics that demonstrate the reliability of the data  Frequency of use of data in peer-reviewed scientific journals	Citizen involvement on scientific data collection.	Increased data on Mississippi Gulf Coast ecological resources.

**Monitoring and Evaluation:** The GMCLI will be monitored for its effectiveness in providing data collected by citizens to resource managers. All data collected will be monitored, QA/QC procedures will be performed for validity, and the dataset structure and availability for end users will be managed. Additional monitoring and evaluation criteria could include: number of app users, frequency of app use, and quality and quantity of submitted data.

**Best Available Science:** Recent reviews have summarized how a) user training, b) peer user reviews of species identification, and c) spot-checking and rarity confirmation by experts, enable crowdsourced data to be quite reliable. Citizen engaged in these efforts were 97% accurate in identification of road-killed species (Waetgen & Shilling 2017). Water quality monitoring via the Mystic River Watershed Association’s citizen scientist program, resulted in the EPA requiring the town of Belmont to make significant investment in repairs to their storm water system. Many citizens contributed countless hours of time taking water quality measures and identifying point sources of pollution (Cooper 2013). Garbarino and Mason (2016, *The Power of Engaging Citizen Scientists*) reports that “highly successful citizen-science projects from multiple scientific disciplines have enhanced our collective understanding of science, such as how RNA molecules fold or determining the microbial metagenomic snapshot of an entire public transportation system”. Further examples of successful citizen engaged projects include:

1. Rediscovery of a rare nine-spotted lady beetle in North America (2007)
2. Citizen scientist program to validate identification of marine invasive species (2008)
3. A citizen scientist network to reduce killing non-venomous snakes in India (2010)
4. Improving and integrating data on invasive species collected by citizen scientists (2010)
5. Young citizen scientist program for collecting data on marine litter (2014)

In each of the above examples, citizens gathered data was found to be generally reliable (typically exceeding 90+% accuracy) and extremely valuable to the success of each project. This citizen led initiative will incorporate the best practices that have been developed in these previous projects.

#### **Budget/Funding**

#### **Estimated Cost of the Project and Amount to be Requested from Oil Spill Impact Component**

**Funds:** \$1.9 million (10% - 35% Planning; 65-90% Implementation)

#### **Partnerships/Collaboration:**

- University of Mississippi
- Mississippi Department of Marine Resources
- RESTORE Council

**Leveraged Resources:** None currently anticipated.

**Funds Used as Non-Federal Match:** None currently anticipated.

**Other:** None currently anticipated.

#### **References:**

Balakrishnan, P. 2010. An education programme and establishment of a citizen scientist network to reduce killing of non-venomous snakes in Malappuram district, Kerala, India. *Conservation Evidence*, 7: 7-15.

Cooper C.B., Dickinson J., Phillips T., Bonney R. 2007. Citizen science as a tool for conservation in residential ecosystems. *Ecol Soc* 12:11.

Crall, A.W., Newman, G.J., Jarnevich, C.S., Stohlgren, T.J., Waller, D.M. and Graham, J. 2010. Improving and integrating data on invasive species collected by citizen scientists. *Biol Invasions* 12: 3419. <https://doi.org/10.1007/s10530-010-9740-9>

Delaney, D.G., Sperling, C.D., Adams, C.S., and Leung, B. 2008. Marine invasive species: validation of citizen science and implications for national monitoring networks. *Biol Invasions* 10:117–128 DOI 10.1007/s10530-007-9114-0

Eastman, L., Hidalgo-Ruz, V., Macaya-Caquilpán, V., Nuñez, P. and Thiel, M. 2014. The potential for young citizen scientist projects: a case study of Chilean schoolchildren collecting data on marine litter. *Journal of Integrated Coastal Zone Management*, 14(4):569-579.

Garbarino, J. and Mason C.E. 2016. The power of engaging citizen scientists for scientific progress. *J. Microbiol Biol Educ.* 1;17(1):7-12. doi: 10.1128/jmbe.v17i1.1052.



Losey, J.E., Perlman, J.E. & Hoebeke, E.R. 2007. Citizen scientist rediscovers rare nine-spotted lady beetle, *Coccinella novemnotata*, in eastern North America. *J. Insect Conserv* 11:415.  
<https://doi.org/10.1007/s10841-007-9077-6>

Waetjen D.P. and Shilling F.M. 2017. Large Extent Volunteer Roadkill and Wildlife Observation Systems as Sources of Reliable Data. *Front. Ecol. Evol.* 5:89. doi: 10.3389/fevo.2017.00089

## **Activity #5: Remote Oyster Setting Facility**

### **Project Summary**

This project will support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region by constructing and operating a remote oyster setting facility. Remote setting is the placement of oyster larvae onto cultch (hard material for oysters to attach to usually shell, crushed concrete, limestone, and the like) at a remote location from the hatchery itself. This facility would assist in increasing the production of the natural oyster reefs along the Mississippi Gulf Coast.

Coastal marine living resources has been identified by the Mississippi coastal stakeholders as a priority restoration program, and further prioritized by the Governor of the State of Mississippi by creating the Governors Oyster's Council. The Council has a goal of harvesting a million sacks of oysters by 2025, and in order to do this restoration efforts must increase commensurately. The remote setting facility is a critical component in the Council's blueprint for oyster restoration, as it will enable the Mississippi Department of Marine Resources to place cultch, laden with spat, at high volumes out into the Mississippi Sound.

This facility will be designed and modeled after the University of Maryland's Horn Point Laboratory. The Horn Point Laboratory has operated since 2003 and has experience in all aspects of the remote-setting process. The Mississippi Department of Marine Resources (MDMR) will consult with Horn Point staff to configure optimal infrastructure layout, setting efficiencies and production milestones. The basic components of the facility will include but are not limited to a robust pier, flow through system holding pens, boat docking facilities, crane operations, and cultch storage. It is not anticipated that any land acquisitions or easement will be required, nor that the project would support transportation and/or deposition of spat-laden cultch materials.

Remote oyster setting facility will provide a complimentary mechanism to the proposed University of Southern Mississippi (USM) Oyster Hatchery that will be funded under the RESTORE Direct Component. Larvae created and raised within the USM Oyster Hatchery will be transported to the remote setting facility and placed on cultch materials at a large scale. Once set, these spat laden cultch materials will be transported to oyster reefs, seed grounds, and inter and sub-tidal areas, and deposited.

Activities may also include, but are not limited to, any necessary permitting, engineering and design, construction, monitoring, program oversight and management, development, coordination, and execution of the grant award between MDEQ and the RESTORE Council and the sub-award between MDEQ and any sub-recipients.

**Need:** In Mississippi, the oyster industry relies primarily on planting cultch and naturally produced oyster larvae (wild larvae) to set on the material to produce market oysters. There is a need to enhance production of existing harvestable reefs. The remote setting facility would allow the Mississippi Department of Marine Resources to increase the amount of spat introduced into the Mississippi Sound and monitor the health and growth of those oysters.

**Purpose:** The purpose of this project is to fund the planning, construction, and operations activities associated with a new large-scale oyster setting facility.

**Objective:** Increase capacity of setting hatchery-reared larvae onto cultch.

**Location:** This project will take place in the Gulf Coast Region.

**Timeline:** This project is anticipated to start 01/01/2019 and end 12/31/2023.

**Additional Information:** The project will be administered by MDEQ.

**Overall Economic or Ecological Contribution to the Recovery of the Gulf Coast:** This project will allow MDMR to increase the amount of spat introduced into the Mississippi Sound and monitor the health and growth of those oysters, which will increase oyster populations and oyster fishery economy on Mississippi's harvestable reefs. Additionally, improvements to oyster reef management can enhance local water quality conditions and ecosystem functioning.

**Eligibility and Statutory Requirements:** This project is located in the Gulf Coast Region as defined by 31 C.F.R. § 34.2. This project qualifies as an eligible activity for funding under the Oil Spill Impact Component funding through 31 C.F.R. § 34.201(a) – restoration and protection of the natural resources, ecosystems, fisheries, marine, and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region, and 33 U.S.C. § 1321(t)(1)(B)(i)(I) of the RESTORE Act. The primary purpose of the project is restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region. This project will enhance oyster resources in Mississippi coastal waters, and will help inform future restoration of the reef system.

**Comprehensive Plan Goals and Objectives:**

This project aligns with the following Comprehensive Plan goals:

- Restore Water Quality – Restore and protect water quality of the Gulf Coast region's fresh, estuarine, and marine waters; and
- Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

This project supports the following Comprehensive Plan objectives:

- Protect and Restore Living Coastal and Marine Resources;
- Promote Community Resilience; and
- Restore, Improve, and Protect Water Resources.

**Major Milestones:**

*Milestone – Design Completed.* The remote-setting facility will undergo engineering and design prior to construction.

*Milestone – Construction Completed.* The pier, remote-setting facility will be constructed.

*Milestone – Setting of Oyster Larvae.* MDMR will maximize oyster larvae production and commensurately spat set annually, the total number of which could vary year to year based on environmental conditions, cultch material availability, and other factors.

**Success Criteria/Metrics/Outcomes:**

The anticipated success criteria of the remote oyster setting facility that will be measured are:

- Design completion of remote oyster setting facility;
- Construction completion of remote oyster setting facility; and
- Direct contribution of the spat on shell (measured as set larvae) to commercial oyster harvest in the State of Mississippi.

Activity	Anticipated Project Success Criteria/Metrics/ Outcomes:	Short-term outcome	Long-term outcome
Oyster Setting Program	Increased in recruitment of oysters on harvestable reefs	Program initiated  Increased oyster production  Increased economic benefit from fishing industry participation	Improved economic benefit to the oyster fishery  Improved oyster productivity and habitat quality

**Monitoring and Evaluation:** Remote setting will be used to increase the amount of spat on cultch introduced into the Mississippi Sound, which would therefore increase the oyster populations on Mississippi's harvestable reefs. Monitoring of cultch sets post larvae introduction will be used to assess spat set success and understand number of spat being delivered to oyster reefs.

**Best Available Science:** Remote setting is a method of producing oysters that differs from natural oyster production. Remote setting is the production of oyster spat by setting hatchery-reared larvae onto cultch (hard material for oyster larvae to attach usually shell, crushed concrete or limestone) at a remote location from the hatchery; spat are then planted on-bottom or off-bottom. The University of Southern Mississippi hatchery will provide larvae as well as knowledge with setting efficiency and deployment. Remote setting has been successfully implemented for the production of oysters along the Pacific coast and the Chesapeake Bay areas of the United States. Remote setting was developed in the Pacific in response to low natural oyster production as a result of over harvesting, pollution, siltation, disease and predation (Jones and Jones 1983, Henderson 1983). Initially, the Pacific coast oyster industry depended on imported seed, which became an unreliable source; however, with the development of hatcheries along the Pacific coast, remote setting continued to develop and thrived (Henderson 1983). In the Chesapeake Bay Area, remote setting developed in an effort to increase oyster production and to utilize disease-resistant larvae produced by hatcheries (Congrove et al. 2009).

#### **Budget/Funding**

##### **Estimated Cost of the Project and Amount to be Requested from Oil Spill Impact Component**

**Funds:** \$9.36 million (10% - 35% Planning; 65-90% Implementation)

#### **Partnerships/Collaboration:**

- University of Southern Mississippi
- Mississippi Department of Marine Resources
- RESTORE Council

**Leveraged Resources:** The USM Oyster Hatchery to be funded under the RESTORE Direct Component will provide oyster larvae for this setting facility.

**Funds Used as Non-Federal Match:** None currently anticipated.

**Other:** None currently anticipated.

**References:**

Congrove, M. S., Wesson, J. A., & Allen, S. (2009). A practical manual for remote setting in Virginia. *VIMS marine resource report*, 21.

Henderson, B. A. (1983). *Handling and remote setting techniques for Pacific oyster larvae Crassostrea gigas* (Doctoral dissertation).

Jones, G. & Jones, B. (1982). Methods for setting hatchery produced oyster larvae. Ministry of Environment, Marine Resources, British Columbia, 61 pp.

## **Activity #6: Coastal Headwaters Land Conservation Program**

### **Project Summary**

This program will support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region by conserving lands adjacent to, and/or targeted around, existing conserved lands that would have water quality and quantity benefit to downstream receiving estuarine systems.

Mississippi's coastal areas have undergone significant changes over time due to a multitude of factors, including population growth, the spread of urban development, land conversion, pollution, invasive species colonization, hydrological modifications, and repeated natural and anthropogenic disasters, including the DWH oil spill. The resulting patterns and stressors have produced a substantial impact on coastal ecosystem mosaic in south Mississippi. Habitat protection will help Mississippi achieve its vision of improving and maintaining coastal water quality and restoring and enhancing ecological function and connectivity of coastal habitats at a landscape scale. Conservation lands with high-functioning ecosystems serve as a foundation for healthy watersheds, rivers and estuaries, fish and wildlife populations, and local communities. Permanently protected areas benefit water resources, buffer existing protected lands, and allow the condition of the ecosystem to be maintained.

Water quality and quantity alterations are the largest threats to our priority bays and estuaries, and land conservation and restoration practices in headwater watersheds is one the most effective restoration practices to ensure sustainable and perpetual delivery of natural system delivery of water quality and quantity to receiving water bodies. Conservation and protection of priority parcels that expand conservation areas, increase connectivity of protected areas, and conserve habitats and ecosystems within priority watersheds will allow for management and restoration actions to benefit water quality. Furthermore, these land conservation efforts will add resilience to existing conserved lands by acquiring lands that buffer those conservation efforts from development pressures, increase connectivity of conserved lands, and enhance connectivity of lands by purchasing inholdings.

The State of Mississippi has invested in land conservation efforts across all three DWH funding streams (RESTORE, NRDA, and NFWF). Under RESTORE, the Council funded the Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes in MS project that invests funds in the Grand Bay Complex, The Gulf Islands National Seashore, and the Biloxi River/Tuxachanie/Tchoutacabouffa/De Soto National Forest areas. Under NFWF-GEBF, the Coastal Connectivity project is acquiring priority parcels in the Coastal Preserves system, and under NRDA, two long term restoration projects in Grand Bay and Graveline are acquiring priority lands in those areas.

Activities also include program oversight and management, development, coordination, and execution of the grant award between MDEQ and the RESTORE Council and the sub-award between MDEQ and any sub-recipients. Activities may include appropriate restoration and management practices, once lands are conserved.

**Need:** From a land conservation perspective there is a need to enhance the resilience of existing conservation efforts by acquiring property that is adjacent to, and/or targeted around existing conservation areas to increase the buffer from development pressures. By acquiring inholdings, additional resilience is achieved by enhancing the connectivity of habitats and managing the area at a broader scale.

**Purpose:** The purpose of this program is to acquire lands for conservation and/or restoration that contribute to improvements in water quality and quantity.

**Objective:** Increase the connectivity and size of state protected areas by conserving lands that are adjacent to, and/or targeted around current protected lands.

**Location:** This program will take place in the Gulf Coast Region.

**Timeline:** This program is anticipated to start 01/01/2019 and end 12/31/2023.

**Additional Information:** The program will be administered by MDEQ.

**Overall Economic or Ecological Contribution to the Recovery of the Gulf Coast:** This program will ensure the long-term resiliency of habitats by placing priority lands that are adjacent to, and/or targeted around already conserved lands under state habitat management which will enhance water quality and quantity contributions downstream.

**Eligibility and Statutory Requirements:** This program is located in the Gulf Coast Region as defined by 31 C.F.R. § 34.2. This program qualifies as an eligible activity for funding under the Oil Spill Impact Component funding through 31 C.F.R. § 34.201(a) – restoration and protection of the natural resources, ecosystems, fisheries, marine, and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region, and 33 U.S.C. § 1321(t)(1)(B)(i)(I) of the RESTORE Act. The primary purpose of the program is restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region.

**Comprehensive Plan Goals and Objectives:**

This program aligns with the following Comprehensive Plan goals:

- Restore Water Quality – Restore and protect water quality of the Gulf Coast region’s fresh, estuarine, and marine waters; and
- Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

This program supports the following Comprehensive Plan objectives:

- Protect and Restore Living Coastal and Marine Resources;
- Restore, Enhance, and Protect Habitats;
- Promote Community Resilience; and
- Restore, Improve, and Protect Water Resources.

**Major Milestones:**

*Milestone – Selection of priority parcels; list of selected parcels.* MDEQ will utilize restoration planning tools to identify and coordinate with stakeholders to discuss priority acquisition targets and refine the areas of interest.

*Milestone – Due Diligence.* Land acquisition due diligence will be performed on all selected and prioritized parcels.

*Milestone – Acquisition.* Interests in land will be acquired.

**Success Criteria/Metrics/Outcomes:**

The anticipated success criteria of the coastal headwaters land conservation program that will be measured are:

- Land Acquisitions – Acres acquired in fee
- Conservation Easements – Acres protected under easement

Activity	Anticipated Program Success Criteria/Metrics/ Outcomes:	Short-term outcome	Long-term outcome
Coastal Headwater Land Conservation Program	Acres acquired and/or under easement	Establish connectivity amongst coastal protected land and increase habitat core size	Land protected in perpetuity  Connectivity of already protected land to allow for better management  Enhanced watershed health

**Monitoring and Evaluation:** Data received from the various components of land acquisition will be synthesized and appropriately added as data input of the Mississippi Comprehensive Ecosystem Restoration Tool (MCERT). Data derived from the respective efforts will be synthesized and analyzed to determine whether restoration outcomes and objectives are being met. These outcomes will be input into MCERT, and model scenarios will be completed to determine site specific alterations to the restoration effort index, as well as determine changes in priority ranking of adjacent parcels for future phases of acquisition.

**Best Available Science:** Connectivity and size of habitat structure are two of the most important ecological elements for productive ecosystem functioning and maintaining the integrity of coastal ecosystems (Correa et al, 2016; Hodgson et al., 2011; Sheaves, 2009). Additionally, upstream management of habitats preserves synergistic effects of service delivery to, and connectivity of, estuarine coastal ecosystems that influence provisions of ecosystem services (Barbier, 2011). The foundational and sustainable nature of land protection and conservation will contribute significantly to the overarching restoration and recovery of habitats and resources affected by the DWH oil spill. Inherently, land protection and conservation of coastal terrestrial and ecotone habitats, and the restoration thereof, will not only preserve priority habitats, but also serve multiple other functions:

- Support nesting, foraging, and stop-over habitat for migratory and resident birds (Buler et al., 2007)
- Enhance the delivery of natural ecosystem services (such as improved water quality and quantity) to priority bays and estuaries (Brooks et al., 2012)
- Improve critical ecosystem functions of community dependent fisheries resources (Albers, 2002)
- Facilitate habitat migration, specifically in times of climate change and sea level rise (Craft et al., 2008)
- Increase availability of natural, healthy spaces for fish and wildlife and local communities



This program aims to conserve areas based on the following two primary factors:

- Adjacency to, and/or targeted around existing publicly and/or privately owned/managed lands: This would contribute to expanding the size of existing tracts of public lands that in theory support larger and more diverse plant and animal communities while also allowing for efficiencies with respect to costs associated with ongoing land management activities;
- Ecological corridors or potential corridor node: This factor considers how a site might contribute to creating/expanding a natural ecological corridor across the coastal landscape, especially as part of a transition from one habitat type to the next. This factor may also dovetail with the adjacency factor for some sites (i.e., located directly adjacent to an existing public holding).

MCERT will be used to help identify suitable areas based on the factors above. Areas acquired will be synthesized and analyzed in MCERT to determine whether restoration outcomes and objectives are being met.

### **Budget/Funding**

#### **Estimated Cost of the Project and Amount to be Requested from Oil Spill Impact Component**

**Funds:** \$8 million (10% - 35% Planning; 65-90% Implementation)

#### **Partnerships/Collaboration:**

- NFWF GEBF
- NRDA Trustees and Associated Trustee Implementation Groups
- RESTORE Council

**Leveraged Resources:** There are several projects that this project would be leveraged against: 1) RESTORE Council Comprehensive Plan Component – Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes in MS; 2) NFWF-GEBF – Coastal Connectivity; 3) NRDA Long term restoration projects of Grand Bay and Graveline Bayou.

**Funds Used as Non-Federal Match:** None currently anticipated.

**Other:** None currently anticipated.

### **References:**

Barbier, E. B., Hacker, S. D., Kennedy, C., Koch, E. W., Stier, A. C., & Silliman, B. R. (2011). The value of estuarine and coastal ecosystem services. *Ecological Monographs*, 81(2), 169-193.

Correa Ayram, C. A., Mendoza, M. E., Etter, A., & Salicrup, D. R. P. (2016). Habitat connectivity in biodiversity conservation: a review of recent studies and applications. *Progress in Physical Geography*, 40(1), 7-37.

Hodgson, J. A., Moilanen, A., Wintle, B. A., & Thomas, C. D. (2011). Habitat area, quality and connectivity: striking the balance for efficient conservation. *Journal of Applied Ecology*, 48(1), 148-152.

Sheaves, M. (2009). Consequences of ecological connectivity: the coastal ecosystem mosaic. *Marine Ecology Progress Series*, 391, 107-115.

Buler, J. J., Moore, F. R., & Woltmann, S. (2007). A multi-scale examination of stopover habitat use by birds. *Ecology*, 88(7), 1789-1802.

Brooks, K. N., Ffolliott, P. F., & Magner, J. A. (2012). *Hydrology and the Management of Watersheds*. John Wiley & Sons.

Alber, M. (2002). A conceptual model of estuarine freshwater inflow management. *Estuaries*, 25(6), 1246-1261.

Craft, C., Clough, J., Ehman, J., Joye, S., Park, R., Pennings, S., & Machmuller, M. (2008). Forecasting the effects of accelerated sea-level rise on tidal marsh ecosystem services. *Frontiers in Ecology and the Environment*, 7(2), 73-78.

## **Activity #7: Round Island Living Shoreline Demonstration and Protection Project (Planning)**

### **Project Summary**

This project will provide planning assistance for planning, engineering and design, and permitting of living shoreline structures at the Round Island Beneficial Use (BU) site to protect the newly created sand berm and marsh from erosion, as well as expansion of the footprint of the current Round Island BU site.

In Mississippi, approximately 10,000 acres of coastal wetlands have been lost in the last 60 years. Two of the primary needs with coastal marsh restoration are to restore and protect existing marsh and re-create marsh previously lost. Restoring and replacing marsh are critical first steps to ensure that a suite of ecosystem benefits is reestablished and enhanced within coastal environments. Protecting those investments with living shoreline technologies ensures the perpetuation of those benefits. To date MDEQ has invested in coastal marsh restoration through a National Fish and Wildlife Foundation Gulf Environmental Benefit Project. This project led to the construction of Round Island, a 220 acre coastal marsh that replaces a years' worth of loss of coastal marsh in Mississippi, and additionally was created to provide significant ecological benefits for coastal birds (waders, colonial nesters, and migrants) as well as other coastal species that use a marsh habitat. The island, once completed, will also provide significant recreational benefit to the stakeholders of coastal Mississippi. Round Island is important as it can receive dredge materials from bi-annual dredge efforts by the US Army Corps of Engineers from the Pascagoula Navigation Channels. As such, Round Island has the capacity to be larger to receive future BU materials.

MDEQ is interested in evaluating living shoreline techniques which utilize material to stabilize shorelines as well as provide a variety of ecosystem service benefits to protect the investment in Round Island. A variety of specific living shoreline techniques and designs will be researched, evaluated, and designed to determine their ability to deliver ecosystem services, maximize shoreline protection, and meet regulatory requirements. Additionally, the project would provide further planning of the Round Island BU site to sync the logistics of the living shoreline placement to the proposed marsh expansion project, which endeavors to expand the current footprint of the Round Island with the purpose to capture beneficial use materials from the Pascagoula Navigation channel bi-annually and create additional marsh.

Activities may also include program oversight and management, development, coordination, and execution of the grant award between MDEQ and the RESTORE Council and the sub-award between MDEQ and any sub-recipients.

**Need:** With increasing investments in the restoration of marsh through the beneficial use of dredge sediments, there is a need to ensure the resilience and protection of those investments and restoration activities. Living shorelines are the single most appropriate restoration activity designed to enhance resilience and protection of marsh habitat.

**Purpose:** The purpose of this project is to support planning assistance for planning, engineering and design, and permitting associated with the placement of a living shoreline at the Round Island BU site as well as expand the footprint of the existing Round Island BU site.

**Objective:** Provide planning activities to protect and expand Round Island's coastal marsh habitat.

**Location:** This project will take place at the Round Island restoration site in the Mississippi Sound.

**Timeline:** This project is anticipated to start 01/01/2019 and end 12/31/2021.

**Additional Information:** The project will be administered by MDEQ.

**Overall Economic or Ecological Contribution to the Recovery of the Gulf Coast:** Coastal marshes play a vital role in the ecological integrity of shoreline habitats, but more critically, as components of ecosystem health within a broader landscape context of coastal ecosystems. Coastal marshes are keystone habitats within the coastal environment as they provide the base for a host of ecosystem services and benefits such as serving as natural buffers to protect shorelines from eroding, storm surge protection, fisheries production, water quality enhancement by trapping and holding sediment and creating biogeochemical conditions for nutrient assimilation and transformation, faunal support, carbon sequestration, and habitat for a multitude of trophic levels within the ecosystem. Additionally, colonization of the living shoreline by oysters and other bivalves can increase the total volume of the breakwater resulting in additional wave attenuation. Other ecosystem services provided by the living shoreline include refuge habitat for aquatic animals and the use of the exposed portions of the breakwaters by seabirds and waterbirds. The foraging and refuge habitats are essential for locally important species such as spotted, blue crabs, stone crabs, eastern oyster, red drum, southern flounder, and various species of commercially important shrimp.

**Eligibility and Statutory Requirements:** This project is located in the Gulf Coast Region as defined by 31 C.F.R. § 34.2. This project qualifies as an eligible activity for funding under the Oil Spill Impact Component funding through 31 C.F.R. § 34.201(j) – planning assistance and 33 U.S.C. § 1321(t)(1)(B)(i)(VIII) of the RESTORE Act. The primary purpose of the project is planning.

**Comprehensive Plan Goals and Objectives:**

This project aligns with the following Comprehensive Plan goals:

- Restore Water Quality – Restore and protect water quality of the Gulf Coast region’s fresh, estuarine, and marine waters; and
- Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

This project supports the following Comprehensive Plan objectives:

- Protect and Restore Living Coastal and Marine Resources;
- Promote Community Resilience; and
- Restore, Improve, and Protect Water Resources.

**Major Milestones:**

*Milestone – Planning and Permitting.* The living shoreline structure area and the footprint expansion areas for the Round Island BU site will undergo planning and permitting.

*Milestone – Engineering and Design.* The living shoreline structure and placement will undergo engineering and design prior to construction as will the expansion area for the current Round Island site.

**Success Criteria/Metrics/Outcomes:**

The anticipated success criteria of the project that will be measured are:

- Number of Engineering and Design Plans
- Island shoreline position

Activity	Anticipated Project Success Criteria/Metrics/ Outcomes:	Short-term outcome	Long-term outcome
Planning, Engineering and Design, Permitting	Number of Engineering and Design Plans/Permits	Shelf ready sites for implementation	Leverage opportunities for implementation

**Monitoring and Evaluation:**

The proposed activities include planning, engineering and design, and permitting activities. These efforts will be tracked to remain on schedule and dovetail with an implementation strategy for planned activities.

**Best Available Science:**

Coastal marshes are effectively keystone habitats within the coastal environment as they provide the base for a host of ecosystem services and benefits such as serving as natural buffers to protect shorelines from eroding, storm surge protection, fisheries production, water quality enhancement by trapping and holding sediment and creating biogeochemical conditions for nutrient assimilation and transformation, faunal support, carbon sequestration, and habitat for a multitude of trophic levels within the ecosystem (Barbier et al., 2011; Mendelssohn et al., 2012). To protect marsh habitats, restoration investments, and other coastal shorelines from wave erosion, damage by intense storms, and sea level rise, restoration actions like living shorelines are often needed to reduce wave energy, and allow for natural shoreline change (Swann, 2008). Various living shoreline technologies have been shown to:

- Slow waves and reduce shoreline erosion (Currin et al., 2015)
- Dissipate wave energy by 50 percent (Knutson et al., 1982)
- Attenuate low and medium energy waves on salt marshes (Shepard et al., 2011)

Additional living shorelines can provide valuable habitat and ecosystem services to society including food production, recreational opportunities, nutrient and sediment removal, water quality improvement, and carbon sequestration (Barbier et al., 2011).

**Budget/Funding****Estimated Cost of the Project and Amount to be Requested from Oil Spill Impact Component**

**Funds:** \$2.2 million (100% Planning)

**Partnerships/Collaboration:**

- Mississippi Department of Marine Resources
- RESTORE Council

**Leveraged Resources:** Round Island was constructed through a currently implemented project through NFWF-GEBF. Additional construction features on the Island may be provided through this NFWF-GEBF project.

**Funds Used as Non-Federal Match:** None currently anticipated.

**Other:** None currently anticipated.

**References:**

Barbier E.B., Hacker, S.D., Kennedy, C., Koch, E.W., Stier, A.C., Silliman, B.R.(2011). The value of estuarine and coastal ecosystem services. *Ecological Monographs* 81(2): 169-193

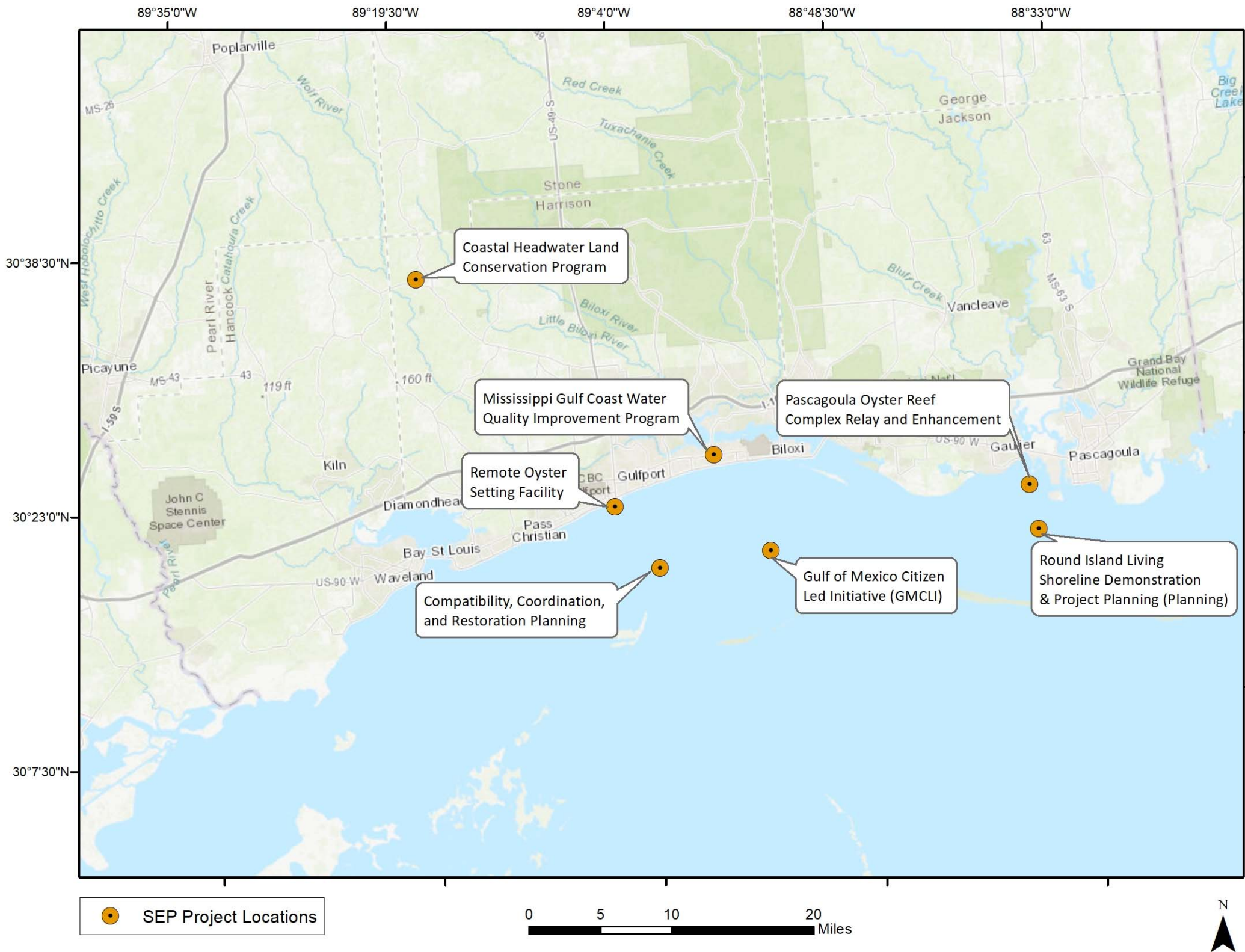
Currin, C. A., J. Davis, L.C. Baron, A. Malhotra, and M. Fonseca (2015). Shoreline change in the New River Estuary, NC: rates and consequences. *Journal of Coastal Research* 31(5) 1069-1077.

Knutson P.L, R.A. Brochu, W.N. Seelig, and M.R. Inskeep, (1982). Wave damping in *Spartina alterniflora* marshes. *Wetlands* 2(1): 87-104.

Mendelssohn, I.A., Andersen, G.L., Baltz, D.M., Caffey, R.H., Carman, K.R., Fleeger, J.W., Joye, S.B., Lin, Q., Maltby, E., Overton, E.B., Rozas, L.P. (2012). Oil impacts on coastal wetlands: implications for the Mississippi River delta ecosystem after the *Deepwater Horizon* oil spill. *Bioscience* 62 (6): 562-574

Shephard, C.C., C.M. Crain, and M.W. Beck (2011). The protective role of coastal marshes: a systemic review and meta-analysis. *PLoS ONE* 6(11).

Swann, L. (2008). The use of living shorelines to mitigate the effects of storm events on Dauphin Island, Alabama, USA. *American Fisheries Society Symposium* 64. 11 pp.



## **THE STATE OF MISSISSIPPI'S RESPONSE TO COMMENTS REGARDING THE 2017 AMENDED MISSISSIPPI STATE EXPENDITURE PLAN (MSEP)**

On November 14, 2017 Mississippi made available its 2017 Amended MSEP for public review and comment. The 2017 Amended MSEP was announced by the Mississippi Department of Environmental Quality (MDEQ) at the 2017 Restoration Summit in Biloxi, MS. During the 2017 Restoration Summit, MDEQ representatives presented project information to the public and Vietnamese translation services were available. A notice was published in the Sun Herald and Clarion-Ledger newspapers informing the public that the 2017 Amended MSEP was available for public review and comment (See Exhibit A). An email blast and text message blast were also sent to those registered to receive notices (See Exhibit A). The 2017 Amended MSEP was made available in both English and Vietnamese through the [www.restore.ms](http://www.restore.ms) website. The 2017 Amended MSEP could be requested via email, fax, telephone, or mail directly from MDEQ. Submission of public input was accepted electronically via [www.restore.ms](http://www.restore.ms), as well as via email, fax, telephone, or mail directly to MDEQ. On December 18, 2017, MDEQ delivered an email message to remind the public that the public review and comment period for the 2017 Amended MSEP would close on January 15, 2018. A final email was delivered to the public on January 10, 2018 as a reminder that the public review and comment period for the 2017 Amended MSEP would close on January 15, 2018 (See Exhibit A).

During the public review and comment period, MDEQ received a total of four sets of written comments. MDEQ reviewed all comments. Similar or related comments have been grouped and summarized for purposes of response and are represented in parentheses behind the comment. All comments submitted during the public review and comment period were considered by MDEQ and each activity in the plan was adopted after consideration of meaningful input from the public. MDEQ drafted summary comment statements to consolidate groups of similar comments into one statement or to summarize a particularly long comment.

This document includes the following sections:

- Section 1: Comments on Specific Projects on 2017 Amended MSEP
- Section 2: General Comments on 2017 Amended MSEP
- Section 3: Comments on Future MSEP Projects

### **SECTION 1: COMMENTS ON SPECIFIC PROJECTS ON 2017 AMENDED MSEP**

**1.1 MDEQ received a comment requesting a refined focus on water quality in the coastal streams basin that MDEQ manages through its non-point source and point source permitting programs for the *Coastal Headwaters Land Conservation Program (Activity #6)* and the *Gulf of Mexico Citizen Led Initiative (Activity #4)*. (1)**

MDEQ appreciates and acknowledges all comments, and understands and appreciates the importance of focusing efforts on existing water quality issues in order to restore water quality and promote ecosystem health. To that end, MDEQ is seeking to address water quality issues in various ways through the currently-proposed projects and anticipates continuing to do so through future projects.



**1.2 MDEQ received a comment recommending that a portion of *planning project* funding support the Environmental Compliance & Enforcement Division (ECED) staff at MDEQ toward investigating coastal watersheds for permitting needs such as updates. (1)**

MDEQ appreciates and acknowledges all comments. MDEQ has and will continue to take into consideration such comments received.

**1.3 MDEQ received a comment encouraging the state to host focus group discussions with the public and key user groups like recreational anglers and charter captains to ensure that the *Gulf of Mexico Citizen Led Initiative (Activity #4)* is being designed in a way for maximum use and applicability. (1)**

MDEQ appreciates and acknowledges all comments, and recognizes the importance of engaging those with the requisite experience for the implementation of restoration activities.

**1.4 MDEQ received a comment on the *Gulf of Mexico Citizen Led Initiative (Activity #4)* suggesting that MDEQ include an assessment of existing apps that are already employed by natural resource agencies, NGOs, or user groups, relative to water quality and/or living coastal and marine resources. (1)**

MDEQ appreciates and acknowledges all comments, and understands and appreciates the importance of utilizing existing applications, data, and resources to maximize the effectiveness of the initiative.

**1.5 MDEQ received a comment in support of the *Mississippi Gulf Coast Water Quality Improvement Program (Activity #1)*. (1)**

MDEQ appreciates and acknowledges this comment received in support of the *Mississippi Gulf Coast Water Quality Improvement Program*.

**1.6 MDEQ received a comment suggesting that the *Mississippi Gulf Coast Water Quality Improvement Program (Activity #1)* utilize commercial fishermen in collecting physical water quality samples and equipping them with water quality data logging sondes to help identify stressors and assist in the monitoring aspect of the program. (1)**

MDEQ appreciates and acknowledges all comments, and recognizes the importance of engaging those with the requisite experience for the implementation of restoration activities. MDEQ has and will continue to comply with the applicable state and/or federal laws and regulations regarding the selection of contractors to perform any services needed to implement Mississippi's restoration activities and projects, as well as adhere to the strict quality assurance (QA) and quality control (QC) protocols for all water quality assessment activities.

**1.7 MDEQ received a comment suggesting that a portion of the funds for the *Mississippi Gulf Coast Water Quality Improvement Program (Activity #1)* be allocated to address data deficiencies regarding hypoxic zones that originate from the eastern side of the Mississippi River and influence water quality conditions in the Western Mississippi Sound. (1)**

MDEQ appreciates and acknowledges all comments, and recognizes the importance of ensuring QA/QC'd data to understand and document changes to water quality and promote ecosystem health. There are ongoing efforts to model hydrodynamic conditions in the Mississippi Sound that will help elucidate water movement dynamics as well as future efforts to identify sources and causes of water quality impairments in the nearshore environment. Further, MDEQ has made available a project portal on

the restore.ms website for which the public can submit restoration project ideas; MDEQ utilizes such portal information to inform the respective decision-making processes.

**1.8 MDEQ received a comment on *Pascagoula Oyster Reef Complex Relay and Enhancement (Activity #2)* recommending the State Public Procurement Review Board and the Mississippi Department of Marine Resources be engaged to ensure that licensed Mississippi commercial oyster fishermen are allowed to participate in the oyster relay component of the project as individual contractors. (1)**

MDEQ appreciates and acknowledges all comments, and recognizes the importance of engaging those with the requisite experience for the implementation of restoration activities. MDEQ has and will continue to comply with the applicable state and/or federal laws and regulations regarding the selection of contractors to perform any services needed to implement Mississippi's restoration activities and projects. It is anticipated that the Mississippi Department of Marine Resources will be responsible for implementing relay/cultivation activities.

**1.9 MDEQ received a comment recommending that the oysters relayed from the *Pascagoula Oyster Reef Complex Relay and Enhancement (Activity #2)* project be harvested using only traditional tonging methods from small, shallow draft vessels to minimize adverse impacts to shallow-water oyster reefs located in this area. (1)**

MDEQ appreciates and acknowledges this comment. Applicable state and/or federal laws, regulations, and procedures associated with oyster removal and transfer will be followed, it is anticipated that the Mississippi Department of Marine Resources will be responsible for implementing relay/cultivation activities.

**1.10 MDEQ received a comment recommending that MDEQ request that the Commission of Marine Resources commit to authorizing the relay of a significant portion of the oysters relayed from the *Pascagoula Oyster Reef Complex Relay and Enhancement (Activity #2)* project to productive dredging reefs in the far Western Mississippi Sound such as St. Joe's Reef. (1)**

MDEQ appreciates and acknowledges this comment. It is anticipated that the Mississippi Department of Marine Resources will be responsible for implementing relay/cultivation activities.

**1.11 MDEQ received a comment recommending that a portion of the funds for the *Compatibility, Coordination, and Restoration Planning (Activity #3)* project be utilized to engage the commercial fishing industry stakeholders before, during, and after implementation of proposed projects occurring within the waters of the Mississippi Sound and adjacent waterways. (1)**

MDEQ appreciates and acknowledges all comments, and recognizes the importance of engaging the public, stakeholders and experts in restoration planning activities. A portion of the funds for *Activity #3* will be utilized for engagement activities.

**1.12 MDEQ received a comment in support of the *Gulf of Mexico Citizen Led Initiative (GMCLI) (Activity #4)*. (1)**

MDEQ appreciates and acknowledges this comment received in support of the *Gulf of Mexico Citizen Led Initiative (GMCLI) (Activity #4)*.

**1.13 MDEQ received a comment in support of the *Remote Oyster Setting Facility (Activity #5)*. (1)**

MDEQ appreciates and acknowledges this comment received in support of MDEQ's proposal action regarding the *Remote Oyster Setting Facility (Activity #5)*.

**1.14 MDEQ received a comment urging MDEQ to use only oyster shells as the preferred cultch material for the *Remote Oyster Setting Facility (Activity #5)* project and reiterated that limestone should not be considered as suitable cultch material. (1)**

MDEQ appreciates and acknowledges this comment. MDEQ has and will continue to take into consideration such comments received.

**1.15 MDEQ received a comment recommending that an oyster shell recycling program with restaurant partners (and others) be implemented to support the *Remote Oyster Setting Facility (Activity #5)* project. (1)**

MDEQ appreciates and acknowledges this comment. MDEQ has and will continue to take into consideration such comments received. MDEQ encourages all stakeholders to submit project ideas to the Mississippi Restoration Project Idea Portal on [www.restore.ms](http://www.restore.ms).

**1.16 MDEQ received a comment recommending funding for additional projects that create private hatcheries within Mississippi to supplement oyster larvae production to support the *Remote Oyster Setting Facility (Activity #5)* project. (1)**

MDEQ appreciates and acknowledges all comments. MDEQ encourages all stakeholders to submit project ideas to the Mississippi Restoration Project Idea Portal on [www.restore.ms](http://www.restore.ms). MDEQ has and will continue to comply with the applicable state and/or federal laws and regulations regarding the selection of subrecipients to implement Mississippi's restoration activities and projects. Private entities do not qualify as eligible subrecipients for RESTORE Act Spill Impact Component funding.

**1.17 MDEQ received a comment strongly recommending that cultch material for the *Remote Oyster Setting Facility (Activity #5)* project be deployed using commercial oyster fishing vessels instead of the high-pressure water discharges that are normally used for cultch deployment from barges. (1)**

MDEQ appreciates and acknowledges this comment. MDEQ has and will continue to take into consideration such comments received. MDEQ recognizes the importance of seeking input from those with the requisite experience for the implementation of restoration activities. MDEQ has and will continue to comply with the applicable state and/or federal laws and regulations regarding the selection of contractors to perform any services needed to implement Mississippi's restoration activities and projects.

**1.18 MDEQ received a comment questioning the justification of the *Coastal Headwaters Land Conservation Program (Activity #6)* considering that multiple funding sources currently exist and are in place that fund land acquisition in coastal Mississippi. (1)**

MDEQ appreciates and acknowledges this comment. MDEQ has and will continue to prioritize coordination and leveraging between the various restoration funding streams.

**1.19 MDEQ received a comment with concern over conflicts of interest with the *Coastal Headwaters Land Conservation Program (Activity #6)* and suggests that these funds may be better utilized for projects that focus on debris and trash removal from coastal headwaters land. (1)**

MDEQ appreciates and acknowledges this comment. MDEQ has and will continue to take into consideration such comments received. MDEQ encourages all stakeholders to submit project ideas to the Mississippi Restoration Project Idea Portal on [www.restore.ms](http://www.restore.ms).

**1.20 MDEQ received a comment of concern on the *Round Island Living Shoreline Demonstration and Protection Project (Activity #7)*, specifically that the expansion will further take away habitat that was previously prime fishing/shrimping habitat for commercial fishermen, will impact operations at the adjacent off-bottom oyster aquaculture area and that the increased bird population will contribute to fecal coliform pollution on the adjacent off-bottom oyster aquaculture area. (1)**

MDEQ appreciates and acknowledges this comment. The Coastal Mississippi environment has experienced significant loss of tidal marsh habitat in the last 60 years, which has a negative impact on several fisheries in the area. The expansion of coastal marsh habitat through the Round Island project will help mitigate marsh loss and provide critical nursery habitat that numerous species of fish and shrimp utilize as part of their life cycle. It is anticipated that projects that create marsh habitat will benefit commercial and recreational fisheries over time.

Project planning and site design for a Round Island expansion will take the necessary steps to avoid conflicts with other efforts, including the off-bottom aquaculture site. MDEQ will work closely with MDMR to ensure the appropriate measures are in place to avoid negative impacts to adjacent efforts.

**1.21 MDEQ received a comment recommending that MDEQ review the results of previously implemented living shoreline projects in Alabama and preliminary results from the Hancock County Marsh Living Shoreline to confirm that the types of living shorelines planned for the *Round Island Living Shoreline Demonstration and Protection Project (Activity #7)* produce the desired results. (1)**

MDEQ appreciates and acknowledges this comment. MDEQ will evaluate living shoreline types to identify the most effective design and materials for this specific location through the implementation of this activity. MDEQ has, and will continue to, monitor and evaluate previous projects to help inform the implementation of future projects.

## **SECTION 2: GENERAL COMMENTS ON 2017 AMENDED MSEP**

**2.1 MDEQ received a comment with concern about the possibility of implementation issues from taking Federal (non-appropriated) funds and executing projects based on the State of Mississippi's funding regulations, even though these funds were not approved by the Legislature. (1)**

MDEQ appreciates and acknowledges this comment. MDEQ has and will continue to comply with applicable state and/or federal laws and regulations.

**2.2 MDEQ received a comment recommending MDEQ consider the outcome of the risk assessments conducted as part of OMB Uniform Guidance (2 C.F.R. 200). (1)**

MDEQ appreciates and acknowledges all comments. MDEQ conducts risk assessments and implements subrecipient monitoring as prescribed in 2 C.F.R. Part 200 for all *Deepwater Horizon* funded projects and programs in Mississippi. MDEQ considers the outcome of each risk assessment when implementing and overseeing projects and programs.

**2.3 MDEQ received a comment in support of MDEQ's efforts to inform and engage the public in restoration efforts, most recently through the second annual Restoration Summit that incorporated a new breakout session on natural resource management, stakeholder conversations to inform future project planning, and online surveys for the public to provide feedback on the Summit as well as Mississippi's restoration in general. (1)**

MDEQ appreciates and acknowledges this comment received in support of MDEQ's public outreach and engagement and the Restoration Summit programming.

**2.4 MDEQ received a comment in support of adding the goal of *Support Community Resilience* to the two original goals, *Restore Water Quality* and *Restore and Revitalize the Gulf Economy* for the 2017 Amended MSEP. (1)**

MDEQ appreciates and acknowledges this comment received in support of adding the goal *Support Community Resilience* to the two original goals: *Restore Water Quality* and *Restore and Revitalize the Gulf Economy*.

**2.5 MDEQ received a comment in support of MDEQ's commitment to engage the Mississippi Gulf Coast's diverse cultures as demonstrated by the release of the 2017 Amended MSEP in English and Vietnamese. (1)**

MDEQ appreciates and acknowledges this comment received in support of MDEQ's commitment to engage the diverse cultures of the Mississippi Gulf Coast.

**2.6 MDEQ received a comment in support of the inclusion of projects on the 2017 Amended MSEP that prioritize providing an ecological benefit to the Mississippi Gulf Coast and encouraging the State to do so in future MSEPS. (1)**

MDEQ appreciates and acknowledges this comment in support of MDEQ's decision to include projects on the 2017 Amended MSEP that provide an ecological benefit to the Mississippi Gulf Coast and will continue to consider projects with ecological benefits in future MSEP development.

**2.7 MDEQ received a comment urging Mississippi to avoid projects that will have direct or indirect adverse environmental impacts, namely degrading or negatively impacting the Coast's natural resources and/or reducing the impact to other completed or planned restoration investments, and recommended that in the rare case where a *Deepwater Horizon* restoration project results in minor and short-term adverse impacts, the project should set aside funds, along with a detailed plan and timeline, for compensatory mitigation. (1)**

MDEQ appreciates and acknowledges all comments. In implementing projects, MDEQ will comply with all applicable environmental law, rules and regulations to ensure that any impacts associated with restoration projects are minimized to the maximum extent practicable.

**2.8 MDEQ received a comment encouraging MDEQ to provide details on how the planning investments funded by the various restoration funding sources support one another and are being leveraged to inform planning and project development, and encouraging MDEQ to provide regular updates on planning efforts so that the public can better understand the action and outcomes associated with these investments. (1)**

MDEQ will continue to prioritize coordination and leveraging between the various funding streams, including planning activities, to maximize comprehensive outcomes and efficiencies. MDEQ has provided clear examples of funding coordination and leverage for specific restoration project area and

resource focuses to the public. These examples include Round Island, Beneficial Use, land conservation efforts in Grand Bay, and Coast-wide water quality improvement. MDEQ will continue to provide updates on all Mississippi *Deepwater Horizon* projects through various stakeholder engagement mechanisms, including [www.restore.ms](http://www.restore.ms). MDEQ has and continues to be committed to public and stakeholder engagement.

### **2.9 MDEQ received a comment in support of the efforts in the 2017 Amended MSEP to maximize and complement other *Deepwater Horizon* investments that Mississippi has made. (1)**

MDEQ appreciates and acknowledges this comment received in support of the efforts in the 2017 Amended MSEP to maximize and complement other *Deepwater Horizon* investments that Mississippi has made.

## **SECTION 3: COMMENTS ON FUTURE MSEP PROJECTS**

### **3.1 MDEQ received a comment requesting a meeting to discuss the coastal streams with a focus on Red Creek. (1)**

MDEQ appreciates and acknowledges all comments. MDEQ encourages all stakeholders to submit project ideas to the Mississippi Restoration Project Idea Portal on [www.restore.ms](http://www.restore.ms).

### **3.2 MDEQ received a comment suggesting that MDEQ post future MSEPs directly on the [www.restore.ms](http://www.restore.ms) rather than making reviewers request an emailed copy. (1)**

MDEQ appreciates and acknowledges all comments. MDEQ intends to make future MSEPs directly available for public comment and review on the [restore.ms](http://www.restore.ms) website without making reviewers request a copy.

### **3.3 MDEQ received a comment encouraging MDEQ to develop a project tracking platform or tool that state and federal agencies involved in restoration can use to communicate their efforts to coast stakeholders and the public; such efforts include identifying, planning, implementing, and monitoring restoration project needs and investments, measuring project/program performance, applying adaptive management or corrective measures, evaluating and tracking project success and milestones, and identifying and applying synergies between *Deepwater Horizon* funding streams and other funding sources. (1)**

DEQ appreciates and acknowledges all comments. Currently, all approved projects in Mississippi are viewable in the MDEQ restoration story map (<http://www.msrestoreteam.com/ProjectStoryMap/>). Information for projects includes budget, progress to date, and access to the project 1-page summary.

In addition, MDEQ is currently developing a project management system that tracks project progress and will include public facing features to update the public on project status. MDEQ has included a section in the NFWF Planning proposal (Round 5) to add a database function specifically for monitoring data and metadata to integrate with the project management system so that the public can obtain all project information in a one-stop shop. MDEQ is coordinating with the NRDA Monitoring and Adaptive Management working group and RESTORE Council staff on development of this system and ongoing efforts from federal entities that track and store project information, including DIVER (<https://www.diver.orr.noaa.gov/>).

MDEQ is also coordinating with GOMA to provide information for the Deepwater Horizon Project Tracker (<http://www.dwhprojecttracker.org/>). This platform maps and provides key information about all

projects funded by Deepwater Horizon oil spill settlements, fines, and other payouts in the Gulf of Mexico.

**3.4 MDEQ received a comment encouraging future MSEPs to seek opportunities to coordinate and leverage proposals and projects in a way that complements and increases the net benefits of ecosystem restoration, as well as potential partnerships with public and private entities, and technical and scientific expertise. (1)**

MDEQ appreciates and acknowledges all comments. MDEQ has and will continue to take into consideration such comments received.

**3.5 MDEQ received a comment requesting MDEQ to identify the various stakeholders that have been engaged in project development in future publicly available documents. (1)**

MDEQ appreciates and acknowledges all comments. MDEQ has and will continue to take into consideration such comments received.

**3.6 MDEQ received a comment stating that [certain NGO members] would like to have the opportunity to comment on potential unintended consequences of certain projects as they are proposed and before implementation. (1)**

MDEQ makes available all projects for public comment that affords any member of the general public the opportunity to comment on potential unintended consequences of certain projects. When let for public comment, all these projects are still in the proposed stage and have not yet been implemented. MDEQ will continue to use the best available science to determine the methods and placement of restoration projects to maximize success and sustainability of the respective project outcomes.