RESTORE Council Proposal Document

General Information

Proposal Sponsor: Alabama Department of Conservation and Natural Resources (ADCNR)

Title:
Coastal Alabama Regional Water Quality Program

Project Abstract:
Alabama, through the Alabama Department of Conservation and Natural Resources (ADCNR), is requesting $40M in Council-Selected Restoration Component funding for the proposed Coastal Alabama Regional Water Quality Program. This would include $21M in planning funds as FPL Category 1, as well as a separate $19M implementation component as an FPL Category 2 priority for potential funding. The program will support the primary RESTORE Comprehensive Plan goal to restore water quality and quantity. The program and projects included for implementation may include, but are not limited to: planning related work (e.g., project prioritization and selection, engineering and design (E&D), and permitting and compliance activities), construction of or upgrades to stormwater and wastewater management systems, low impact development/green infrastructure activities, and septic to sewer conversions. Prior to conducting E&D and/or construction activities, ADCNR will develop a process for project identification and project selection. E&D, permitting and implementation would be conducted according to State and Federal engineering and design guidelines and construction standards.

Multiple stakeholder forums in coastal Alabama have prioritized the improvement of water quality for promoting ecosystem health as an important driver of restoring the environment and economy of coastal Alabama. Bacterial and nutrient loading from pollutant sources results in harmful algal blooms, oyster reef closures, hypoxia development, and thus has indirect consequences on coastal workforce and economies. Program duration is 10 years.

FPL Category: Cat1: Planning/ Cat2: Implementation

Activity Type: Program

Program: South Alabama Water Quality Improvements Program

Co-sponsoring Agency(ies): N/A

Is this a construction project?:
Yes

RESTORE Act Priority Criteria:
(I) Projects that are projected to make the greatest contribution to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region, without regard to geographic location within the Gulf Coast region.
(II) Large-scale projects and programs that are projected to substantially contribute to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast ecosystem.
(III) Projects contained in existing Gulf Coast State comprehensive plans for the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and

coastal wetlands of the Gulf Coast region.
(IV) Projects that restore long-term resiliency of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands most impacted by the Deepwater Horizon oil spill.

Priority Criteria Justification:
#1 Projects that are projected to make the greatest contributions. Improving water quality is a foundational restoration action that will yield the greatest contributions to restoring and protecting coastal living and marine resources.
#2 Large scale projects that substantially contribute. Water quality is a pervasive concern across the Gulf coast and implementing large scale repairs, upgrades, and/or alternative treatment solutions will substantially contribute to downstream ecosystem health of multiple coastal habitats and coastal living marine resources.
#3 Projects contained in existing Gulf State comprehensive plans. Water quality has been identified in the Coastal Alabama River Basin Management Plan (5), the Mobile Bay National Estuarine Program Comprehensive Conservation Management Plan (6) as well as the National Wildlife Federation (7) planning documents as being a priority for Gulf-wide restoration.
#4. Long term resiliency. Water quality improvement, and the decrease of point and non-point source pollution into receiving waters enhances the long-term resilience of multiple coastal and marine living resources by improving water column integrity.

Project Duration (in years): 10

Goals

Primary Comprehensive Plan Goal:
Restore Water Quality and Quantity

Primary Comprehensive Plan Objective:
Restore, Improve, and Protect Water Resources

Secondary Comprehensive Plan Objectives:
N/A

Secondary Comprehensive Plan Goals:
N/A

PF Restoration Technique(s):
Reduce excess nutrients and other pollutants to watersheds: Erosion and sediment control
Reduce excess nutrients and other pollutants to watersheds: Stormwater management
Reduce excess nutrients and other pollutants to watersheds: Wastewater system improvements

Location

Location:
Coastal Alabama; Mobile and Baldwin Counties.

HUC8 Watershed(s):
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(Perdido Bay)
South Atlantic-Gulf Region(Alabama) - Alabama(Lower Alabama)
South Atlantic-Gulf Region(Mobile-Tombigbee) - Mobile Bay-Tombigbee(Mobile-Tensaw)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(Perdido)
South Atlantic-Gulf Region(Pascagoula) - Pascagoula(Escatawpa)
South Atlantic-Gulf Region(Pascagoula) - Pascagoula(Mississippi Coastal)

State(s):
Alabama

County/Parish(es):
AL - Baldwin
AL - Mobile

Congressional District(s):
AL - 1

Narratives

Introduction and Overview:

Restoration of water quality has been identified as a major restoration goal by the state of Alabama and the Alabama Department of Conservation and Natural Resources (ADCNR). Multiple stakeholder engagement forums with coastal Alabama communities, municipalities, and non-governmental organizations have all prioritized the improvement of water quality for promoting ecosystem health as an important driver of restoring the environment and economy of coastal Alabama (MBNEP 2019). Within the Mobile Bay National Estuary Program (MBNEP) Comprehensive Conservation and Management Plan (CCMP), water quality was identified as one of the six guiding values (MBNEP 2019). Alabama has recently invested significantly in millions of dollars of water quality improvements via the RESTORE Spill Impact Component and RESTORE Direct Components across Mobile and Baldwin Counties, including projects in Fairhope, Mount Vernon, Bayou La Batre, Dauphin Island, Mobile, Satsuma and Chickasaw (AGCRC 2018, AGCRC 2019). These projects are in varying stages of completion but all projects are monitored by DCNR as part of their oversight responsibilities and lessons learned will be incorporated into this program as it is adaptively managed over time.

Water quality is monitored by the Alabama Department of Environmental Management and several local entities. The 2020 ADEM 303(d) list of impaired water bodies in Mobile and Baldwin Counties includes a number of water bodies that are listed as impaired for pathogens, with sources including urban runoff, stormsewers, on-site wastewater systems and municipal wastewater systems. These impaired waterbodies include, but are not limited to: Mississippi Sound, Portersville Bay, Grand Bay, Fowl River, Silver Creek, Mobile Bay, Pelican Bay, Boggy Branch, and others (ADEM 2020). Alabama proposes the planning and implementation of the Coastal Alabama Regional Water Quality Program (the Program). The program and projects included for implementation may include, but are not limited to: planning related work (e.g., project prioritization and selection, engineering and design, and permitting and compliance activities), construction of stormwater and wastewater management systems (including upgrades and repairs to existing systems), low impact development/green infrastructure activities, and septic to sewer conversions. Prior to conducting engineering and design and/or construction activities, ADCNR will develop a process for project identification and project selection. Engineering and design, permitting, and implementation would be conducted according to State and Federal engineering and design guidelines and construction standards.

There are five goals within the RESTORE Councils comprehensive plan. This Program addresses one of those goals, Goal #2: Restore Water Quality and Quantity. The Program ties in with RESTORE Councils primary objective of Restore, Improve, and Protect Water Resources.

Under the 2016 Comprehensive Plan update the Council advanced the following commitments:

- Regional ecosystem-based approach to restoration: Through extensive collaboration engagement opportunities as a result of the CPS support funds, it is clear that water quality is a priority goal for the Restore Council members from Florida to Texas. Addressing water quality degradation and impairment is a foundational component of restoring/enhancing a host of living and coastal marine resources. Addressing water quality sustains multiple elements of local Alabama coastal stakeholder communities as well as regional resilience to multiple living coastal marine resources within Mississippi, and across the Gulf, cultures, economies, and societies are sustained by ecological services that are impacted by water quality issues
- Leveraging resources and partnerships: The State of Alabama has invested significant funding under National Fish and Wildlife Foundation Gulf Environmental Benefit Fund (NFWF-GEBF) as well as the initial Funded Priorities List (FPL) into developing watershed planning documents that have opportunities to fund prioritized water quality related improvement projects. Additionally, the Alabama Recovery Council has identified several Direct Component (B1) and Spill Impact component

(B3) water quality improvement projects that would leverage and coordinate with planning process and eventual project selection under this program. Lastly, GOMESA funding is anticipated to be leveraged into the implementation of this water quality improvement program, maximizing the number of projects that could get implemented and providing unforeseen contingency funding if needed.

- Engagement, Inclusion, and Transparency: Since 2010, ADCNR and the State of Alabama have provided multiple opportunities for the public to identify restoration funding priorities. Water quality improvement has been a strong and consistent theme in this public input. Within the MBNEP stakeholder engagement efforts for the CCMP development, water quality, its assessment and improvement, are identified as a priority restoration activity.
- Science-based decision-making: Utilizing the best available science available to ADCNR as well as relying on the local knowledge of the cities and municipalities to water quality issues, wastewater and stormwater maintenance concerns and repair history, ADCNR would prioritize and select water quality projects for implementation. Additionally, technical expertise would be provided through a small technical work group during the project evaluation and categorization process.
- Delivering results and measuring impacts: Monitoring the pervasive water quality degradation and the indirect impacts on living coastal and marine resources is challenging. This program would monitor individual projects (impact dependent on purpose) and roll up water quality improvements from a construction, E&D, and permitting perspective to gauge broader program success.

The improvement of water quality conditions has multiple environmental benefits (Capps 2019). Through water quality improvement (i.e., nutrient and other pollutant reduction) multiple living coastal marine resources benefit, including humans. A decrease in nutrient loads into downstream receiving water bodies reduces the development of algal blooms (as well as harmful algal blooms) reducing the opportunity for hypoxia to develop and result in mortality of sedentary benthic organisms and harm to mobile marine resources such as fisheries. Water quality degradation of coastal water bodies in Alabama is a both an economic (recreational and commercial) and environmental stressor. Bacterial and nutrient loading from pollutant sources results in harmful algal blooms, oyster reef closures, hypoxia development, and thus indirect consequences on coastal workforce and economies. A number of water quality assessments conducted in Alabama underscore the importance of addressing water quality impairments stemming from wastewater discharge and stormwater runoff holistically (see MBNEP 2012, MBNEP 2014, MBNEP 2016, MBNEP 2018, MBNEP 2019).

Total Cost: $40,000,000. Water quality implementation is scalable, with 90% of these funds being used for implementation.
Timeline: 10 years.

ADCNR would work and partner with coastal cities, municipalities and utility associations to implement water quality improvement program objectives. This Program aligns with the planning framework approach to reduce excess nutrients and other pollutants to watersheds and downstream receiving waters. Further, this program would utilize planning framework techniques including storm-water management, erosion and sediment control, and wastewater system improvements.

Proposed Methods :

The Program would be very similar to the water quality improvement programs being proposed by the State of Florida, Mississippi, and Texas. Alabama's program is eligible and would immediately support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region (GCERC, 2016). Activities within this specific proposed program could run concurrently and would include, but not be limited

to the following:

- Planning, project identification, project vetting, and project selection;
- engineering and design (E&D), and permitting;
- conversion from septic to sewer in coastal communities; and
- implementation of new or repairing/upgrading existing stormwater and wastewater systems and/or low impact development activities..

Planning, Project Identification, and Selection

In order to fund any engineering and design and construction projects ADCNR would develop a process for project identification and project selection. A proposed selection process that would be implemented after the Program is approved is described below.

Application Preparation: An application narrative would be put together that could include, but not be limited to, the following:

- water quality improvement activities proposed;
- location and receiving water body that it would impact;
- current impairments/ degradation of receiving water body;
- potential community need;
- ecological benefits of implementation;
- possible resiliency considerations; and
- matching funds / leveraging opportunities.

The project application window would be open between 45 – 60 days. Within this application window ADCNR would hold an info session / webinar for potential applicants. The information contained in the proposals in the above areas will inform the categorization and selection of projects for implementation.

Technical Team Review: A small technical group would review proposals according to an evaluation process that would review the information provided, address additional logistical considerations and additional evaluation criteria, as determined by ADCNR and the technical group. The technical group would categorize projects as follows:

- Category 1: those projects which have the potential to be most beneficial and/or that are closer to implementation;
- Category 2: Those projects which represent a medium priority or benefit;
- Category 3: Those projects that do not have enough information to make decisions or that are a better fit for another funding source.
- ADCNR reserves the right to move projects between categories.

Public Comment: The categorized project list would be presented to the public via a webinar or public meeting to receive public input in order to further evaluate and refine and reprioritize the list as appropriate. ADCNR, with the support of the technical team, would evaluate funding availability and leverage opportunities and would meet with the potential sub-recipients to get additional information on the projects as needed.

Project Selection: ADCNR, with input from the technical team, will select a slate of projects for inclusion in the program. The slate of projects could include several alternates given possible logistical considerations and budget changes. ADCNR would engage the RESTORE Council on Category 1 and Category 2 projects, respectively, based on environmental compliance needs or inclusion, and would initiate the grant application process on behalf of the sub-recipient with the RESTORE Council.

E&D and Permitting

Engineering, design, and permitting of the identified projects would be considered for funding utilizing standard engineering practices, including certified and stamped plans. Depending on the style and type of system upgrade (conventional gravity sewers, pumping stations, treatment works, etc.), repair or construction, standard engineering principles or guidelines would differ. Specific engineering guidelines would be informed by Alabama state agency policy decisions.

Implementation

Implementation within the water quality improvement program would focus on stormwater and wastewater improvement practices. Any implementation would follow standard construction and environmental practices, and any other applicable state and federal requirements (Walsh et al., 2005a, b; Hogan and Walbridge, 2007; Walsh et al., 2016). Implementation could include a broad range of activities to treat and improve water quality moving downstream, including, but not limited to:

- connection of existing septic systems to main line sewer infrastructure;
- crushing and filling of discontinued septic systems;
- upgrades, repairs, and replacements of sewer lines, including cure in place pipe (CIPP) technologies;
* installation of low impact development infrastructure/features;
- wastewater treatment plants, stormwater connections, manholes, and pump stations; and
- installation of water control structures and integration of existing drainage canals with green infrastructure.

Design teams could consider additional resources on new technologies tied to upgrades and improvements to wastewater collection systems (Sterling et al., 2010; FDEP, 2018) based on existing system needs, environmental/ permitting requirements and restrictions. All construction would be conducted following specific Alabama guidelines for construction practice implementation (e.g., The Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction sites and urban Areas; ASWCC, 2018). Additionally, this program would be coordinated with other water quality improvement efforts under other Deepwater Horizon related funding streams, including water quality activities funded under B1 and B3 through the Alabama Recovery Council as well as leveraged with $30 million of GOMESA funding.

Environmental Benefits:

Elevated nutrient and bacterial loading and harmful algal bloom development are water quality problems that reoccur in Alabama coastal waters. Restoration and improvement of the quality of water, as a natural resource, would benefit the marine/coastal ecosystems, habitats, and fisheries within Alabama waters, and regionally within the Gulf. Water quality impacts of nutrient and bacterial pollution in coastal systems is a global phenomenon (Mallin et al., 2000; Bennett et al., 2001; Diaz and Rosenberg, 2008; Vörösmarty et al., 2010; Lymer et al., 2018; O'Mullan et al., 2019). A change in water quality is often associated with changes in water column conditions (i.e., hypoxia, eutrophication, and bacterial loads). The most visible water quality degradation is often associated with urban runoff, as well as discharge and sanitary sewer overflow issues, all of which are associated with wastewater management. There are numerous studies and governmental reports that point to SSOs, overflow issues, and other infrastructure failures impacting and contributing to decreases in water quality in downstream receiving systems, shellfish bed closures, and other environmental problems (e.g., EPA, 2004). The EPA estimates that there are at least 23,000 – 75,000 sanitary sewer overflows (SSOs) per year in the U.S. (EPA, N.D.), many of which are not specifically associated with impaired water listings, TMDLs, or other criteria. Replacement of aging or failing stormwater and wastewater infrastructure could also help communities plan for and address anticipated impacts of climate change associated with sea level rise, changes in precipitation, etc. (Kessler 2011).

The Program has the following objectives to improve water quality entering into Alabama coastal waters: 1) evaluation and assessment; 2) E&D and permitting; 3) implementation; and 4) monitoring.

Evaluation: Systematic water quality evaluation and assessment would identify the source, dynamics, and cost effective stormwater and wastewater improvement practices to improve water quality (Park et al., 1994; Sharpley et al., 2007; Spellman, 2008). A project evaluation and categorization process could inform project selection. Consideration of priorities identified in Mobile Bay NEP Watershed Management Plans will also be included in the evaluation process.

Engineering and Design: Engineering, design, and permitting of the identified solutions (standard engineering practices, including certified and stamped plans) would be informed by respective state engineering design standards. This objective identifies and evaluates wastewater related problems; assembles basic information; presents criteria and assumptions; and examines alternate projects with preliminary plans and cost estimates.

Implementation: Implementation of designed stormwater and wastewater improvement practices would follow standard construction and environmental practices, and any other applicable state and federal requirements (Walsh et al., 2005a, b; Hogan and Walbridge, 2007; Walsh et al., 2016). In addition, all implementation activities would follow construction best management practice requirements to mitigate both on-site and off-site environmental and societal risks (e.g., ASWCC, 2018)

Monitoring: Success monitoring would document project outcomes and project-specific changes to downstream receiving waters (Fu et al., 2019; Tolouei et al., 2019). This would include monitoring the success of the respective practices (Kondolf and Micheli, 1995; Spellman, 2008; Lindenmayer and Likens, 2009a, 2009b; Reynolds et al., 2016), specifically wastewater discharges.

The methodologies and objectives in the Scope of Work section follow best available science for water quality improvement projects, are scientifically defensible, and allow for an on-the-ground operational decision-making process to best improve water quality. Proposed metrics are subject to change based on individual project considerations.

Metrics:

Metric Title: HM001 : Nutrient reduction - Lbs. N avoided or removed
Target: TBD
Narrative: The number of pounds removed or avoided will be dependent on baseline information to be obtained at a later date.

Metric Title: HM003 : Nutrient reduction - Lbs. P avoided or removed
Target: TBD
Narrative: The number of pounds removed or avoided will be dependent on baseline information to be obtained at a later date.

Metric Title: HM004 : Sediment reduction - Lbs. sediment avoided or removed
Target: TBD
Narrative: The number of pounds removed or avoided will be dependent on baseline information to be obtained at a later date.

Metric Title: RES004 : Upgrades to Stormwater and/or Wastewater Systems - CFU Reduction in bacterial loads
Target: TBD
Narrative: Target for metric regarding CFU reduction in bacterial loads is project-specific and will be dependent on baseline information to be obtained at a later date.

Metric Title: PRM011 : Restoration planning/design/permitting - # E&D plans developed
Target: TBD
Narrative: The number of E&D plans would indicate the number of water quality implementation projects moved forward to implementation.

Metric Title: PRM013 : Restoration planning/design/permitting - # environmental compliance documents completed
Target: TBD
Narrative: The number of permits/compliance documents would indicate the number of water quality implementation projects moved forward to implementation.

Metric Title: RES002 : Watershed management - # upgrades to stormwater and/or wastewater systems
Target: TBD
Narrative: The number of implementation activities would indicate the number of projects implemented for water quality improvement.

Risk and Uncertainties:
There are several risks and uncertainties related to water quality improvement and the construction and implementation of water quality improvement projects.

Practice Implementation: Typically, cities and municipalities have working on the ground knowledge of the best infrastructure repairs and upgrades. Entities may be unsure about the water quality improvement benefits associated with a variety of newer technological options versus traditional repairs and upgrades. Planning and research around benefits of respective technologies reduces the risk and uncertainty of practice implementation.

Cost: Implementation costs may be highly variable considering undiscovered issues and logistics associated with newer technologies. Not being able to measure water quality improvements resulting from new technologies is a typical concern. The risk associated with undetectable improvements can be mitigated with due diligence and appropriate, tailored, monitoring targeting the area of concern. Uncertainty is further reduced by specifying tasks and objectives for planning and evaluation, clarifying and targeting the scientific basis for implementation, determining the types of practices implemented, which can result in respective costs reduction. Diligent project management and oversight is a key element of mitigating these risks.

Experience: Cities and municipalities are potential subaward recipients that, with long-term experience in implementing wastewater and stormwater improvement projects across coastal Alabama. They are familiar with environmental and societal risks associated with the implementation of a variety of practices and, working with ADCNR would ensure that appropriate mitigation measures (best management practices) are in place. Risk considerations include environmental degradation from construction practices and mitigating offsite effects. Risks are mitigated in the near-term through the use of best management practices for erosion and sediment control, sediment (ASWCC, 2018). The implementation of the water quality improvement reduces the long-term environmental risk.

Sea Level / Storm surge: Sea level rise and storm surge are two risks and uncertainties to project implementation performance. Hummel et al. (2018) summarized a national assessment of coastal wastewater treatment facilities at risk for sea level rise. The Gulf coast of Alabama and Mississippi was classified as low risk, with low exposure across a sea level rise gradient from 1ft to 6ft. Given the variability in sea level rise prediction as well as the anticipated immediate ecosystem service benefits of the implementation of sewer and wastewater infrastructure, is unlikely that pipe infrastructure implementation would consider sea-level rise. However, with respect to storm surge, certain upgrades (i.e., pump stations, backflow valves, electrical connections etc.) could be based on storm surge predictions and to ensure lack of failure under those conditions.

Monitoring and Adaptive Management:

Monitoring would occur at the program and -project-specific level. Programmatic monitoring would rely on rolling up of individual project outcomes and the option to include a broader network of water quality monitoring stations and advisory databases to identify potential long-term changes that are a result of project implementation. Project-specific monitoring would include documentation of water quality improvements for the identified water resource issues (i.e., nutrients, sediment, bacteria, inflow and infiltration). As-built monitoring would include surveys and other data collection as needed. Pre-implementation and post-implementation monitoring for degradation sources would be monitored to observe trends over time which could be compared to long-term advisory information. There is the potential to document changes, but that will be highly dependent on the availability of data. Trends could also be paired with water flow and climate data to provide data for any documented changes. Additional monitoring that could take place for construction improvements could include pressure gauge and/or smoke testing, infiltration and inflow (I&I) testing and modelling, etc. Post implementation monitoring would identify project-specific outcomes. Each project could be adaptively managed based on outcomes from monitoring. Any project-specific monitoring metrics or measures identified would be cross-referenced with NRDA MAM manual (DWH 2017) as well as any associated water quality monitoring guidance from the Council Monitoring and Assessment Work Group.

In addition to the Program-wide metrics described, additional metrics may be added on a project specific basis, including but not limited to:

- Reduction in nutrient loading (HM001, HM002, HM003, etc.);
- Reduction in bacterial loading (no existing metric);
- Reduction in suspended sediment (e.g., HM004); and/or
- Upgrades to stormwater and/or wastewater systems (e.g., RES002).

These potential metrics would be assigned on a project-specific basis and all required documentation (ODP, DMP, GIS, etc.) would be provided at that time.

Data Management:

To the extent practicable, environmental and biological data generated during monitoring activities would be documented using standardized field datasheets. If standardized datasheets are unavailable or not readily amendable to record project-specific data, then project-specific datasheets will be drafted prior to conducting any project monitoring activities. Original hardcopy datasheets, electronic notes, notebooks, and photographs would be retained by the ADCNR. Relevant project data that are handwritten on hardcopy datasheets or notebooks would be transcribed (entered) into standard digital format. All data would have properly documented FGDC/ISO metadata, a data dictionary (defines codes and fields used in the dataset), and/or a Readme file as appropriate (e.g., how data was collected, QA/QC procedures, other information about data such as meaning, relationships to other data, origin, usage, and format – can reference different documents). Electronic data files will be named with the date on which the file was created

and will include a ReadMe file that describes when the file was created and by whom, and any explanatory notes on the file contents. If a data file is revised, a new copy will be made and the original preserved. Data would be made publicly available and accessible on a website that is still to be determined.

Collaboration:

Through the FPL collaborative planning process, Alabama identified an opportunity for a large-scale, multi-member, coordinated program for improving Water Quality across the Gulf. The States of Alabama, Florida, Mississippi, and Texas all share a collaborative desire to improve water quality, with Mississippi and Florida sharing watersheds and boundary waters to enhance regional water quality opportunities. The State of Alabama, via the Mobile Bay National Estuary Program, has funded the development of several watershed plans that have included grassroots engagement of coastal Alabama stakeholders to determine priorities as well as potential restoration actions and activities to address those restoration priorities. Water quality has shown to be a priority restoration objective for the stakeholders of coastal Alabama.

Public Engagement, Outreach, and Education:

ADCNR and the State of Alabama held a restoration summit in 2018 as well as several meeting for the Councils' planning framework for FPL 3. Water Quality was one of the priorities that was identified by the coastal stakeholders at the Summit. In addition, the Alabama Recovery Council public engagement effort resulted in several Bucket 1 and Bucket 3 Water Quality projects that were prioritized for funding.

To further facilitate Alabama stakeholder prioritization of water quality as a restoration priority, and to encourage transparency throughout the program life, there would be two info / webinar sessions during the project selection process:

- The first would be for potential applicants to provide additional thoughts, questions, and solicit input around proposed water quality improvement ideas;
- The second would be to provide decisions / results of project categorization process for all submitted projects

This second webinar would provide the public an opportunity to see the results of project categorization, and obtain feedback and comments on the projects. This information could be incorporated into the final DCNR decision making process for final project selection.

Leveraging:

Funds: $3,000,000.00
Type: Bldg on Others
Status: Received
Source Type: Other
Description: In the 2015 Initial FPL, the Council funded the development of watershed plans for this geographic area, the establishment of an estuary program, and the implementation of submerged aquatic vegetation (SAV) restoration and monitoring.

Environmental Compliance:

This Program would partition funding between Category 1 Planning and Category 2 Implementation funding. Coordination is ongoing with several federal council members for the discovery and use of NEPA documentation, including categorical exclusions (CEs) to maximize the amount of funding placed into Category 1. The Category 1 planning activities are covered by the Council's NEPA Categorical Exclusion for planning, research or design activities (Section 4(d)(3) of the Council's NEPA Procedures). Subsequent FPL amendment(s) and additional environmental compliance will be

needed to approve implementation funding for the Category 2 efforts under this program. It is well understood that funding placed in Category 2 is not guaranteed and is determined by NEPA.

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Budget

Project Budget Narrative:
A total of $40,000,000 is being requested from FPL 3b to fund planning, implementation and monitoring associated with the Program. This project is scaleable. The funds being requested are solely intended to be used to determine and implement water quality related infrastructure improvement implementation. Any additional leveraging and cost sharing, from respective cities, municipalities, or additional DeepWater Horizon related funding streams are not part of this request. An estimated 48% is being requested for "planning" activities, including overall program management, site-specific planning activities such as engineering and design and environmental permitting/compliance activities, and overall program monitoring and adaptive management. An estimated 47% is being requested for construction and project implementation, which may include, but is not limited to: individual project management and construction of proposed water quality improvements. . Implementation within the Program may include, but is not limited to, program management, individual project management, project implementation related work (e.g., engineering and design, any required permitting), construction of stormwater and wastewater management systems (including upgrades and repairs), as well as possible septic to sewer conversions. An estimated 5% is being requested for project planning activities such as program planning, project selection and identification, as well as project administration, including administrative programmatic functions, coordination, and sub-recipient / contractual support for project implementation. An estimated 4% is being requested for monitoring and adaptive management activities to ensure progress is made towards water quality improvement. An estimated 1% is being requested for data management activities. The need for contingency costs will be considered as appropriate when developing individual project-specific budgets.

Total FPL 3 Project/Program Budget Request:
$ 40,000,000.00

Estimated Percent Monitoring and Adaptive Management: 4 %
Estimated Percent Planning: 48 %
Estimated Percent Implementation: 47 %
Estimated Percent Project Management: 0 %
Estimated Percent Data Management: 1 %
Estimated Percent Contingency: 0 %

Is the Project Scalable?:
Yes

If yes, provide a short description regarding scalability.:
The scalable nature of water quality improvement program is tied to the number of projects implemented. The size and cost of a specific project is typically not scalable based on the maintenance, repair, or replacement that needs to occur to reduce and remove the water quality degradation source.

Environmental Compliance[1]

Environmental Requirement	Has the Requirement Been Addressed?	Compliance Notes (e.g.,title and date of document, permit number, weblink etc.)
National Environmental Policy Act	Yes	The Category 1 planning activities are covered by the Council's NEPA Categorical Exclusion for planning, research or design activities (Section 4(d)(3) of the Council's NEPA Procedures). Subsequent FPL amendment(s) and additional environmental compliance will be needed to approve implementation funding for the Category 2 efforts under this program.
Endangered Species Act	N/A	Note not provided.
National Historic Preservation Act	N/A	Note not provided.
Magnuson-Stevens Act	N/A	Note not provided.
Fish and Wildlife Conservation Act	N/A	Note not provided.
Coastal Zone Management Act	N/A	Note not provided.
Coastal Barrier Resources Act	N/A	Note not provided.
Farmland Protection Policy Act	N/A	Note not provided.
Clean Water Act (Section 404)	N/A	Note not provided.
River and Harbors Act (Section 10)	N/A	Note not provided.
Marine Protection, Research and Sanctuaries Act	N/A	Note not provided.
Marine Mammal Protection Act	N/A	Note not provided.
National Marine Sanctuaries Act	N/A	Note not provided.
Migratory Bird Treaty Act	N/A	Note not provided.
Bald and Golden Eagle Protection Act	N/A	Note not provided.
Clean Air Act	N/A	Note not provided.
Other Applicable Environmental Compliance Laws or Regulations	N/A	Note not provided.

[1] Environmental Compliance documents available by request (restorecouncil@restorethegulf.gov)

Maps, Charts, Figures

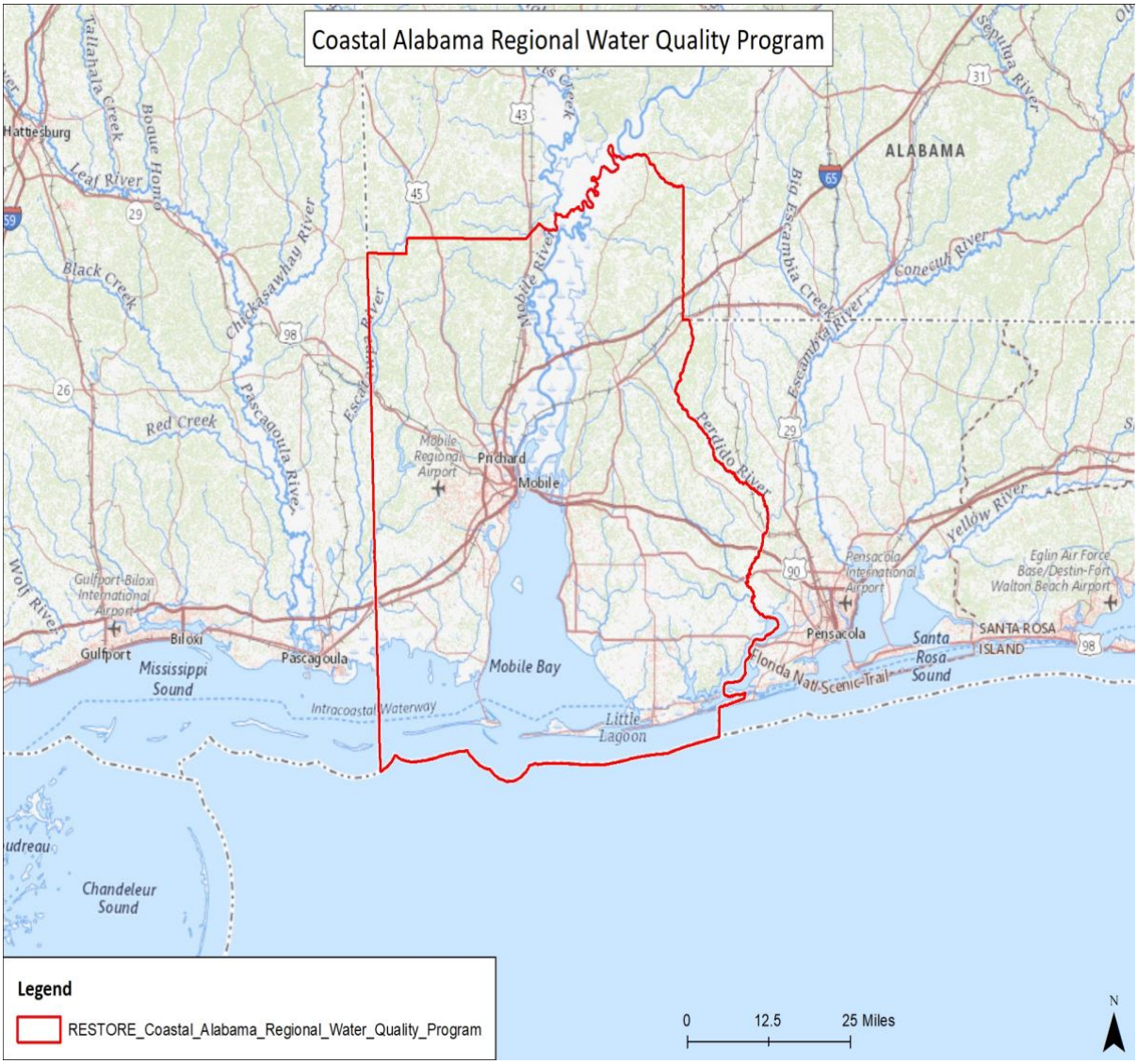

Figure 1: Map of Program Area

RESTORE Council FPL 3 Proposal Document

General Information

Proposal Sponsor:
Alabama Department of Conservation and Natural Resources

Title:
Coastal Alabama Regional Water Quality Program

Project Abstract:
Restoration of water quality has been identified as a major restoration goal by the state of Alabama and the Alabama Department of Conservation and Natural Resources (ADCNR). Multiple stakeholder engagement forums with coastal Alabama communities, municipalities, and non-governmental organizations have all prioritized the improvement of water quality for promoting ecosystem health as an important driver of restoring the environment and economy of coastal Alabama. Alabama proposes the planning and implementation of the Coastal Alabama Regional Water Quality Program (the Program). The program and projects included for implementation may include, but are not limited to: planning related work (e.g., project prioritization and selection, engineering and design, and permitting and compliance activities), construction of stormwater and wastewater management systems (including upgrades and repairs to existing systems), low impact development/green infrastructure activities, and septic to sewer conversions. Prior to conducting engineering and design and/or construction activities, ADCNR will develop a process for project identification and project selection. Engineering and design, permitting and implementation would be conducted according to State and Federal engineering and design guidelines and construction standards.

FPL Category: Cat1: Planning/ Cat2: Implementation

Activity Type: Program

Program: South Alabama Water Quality Improvements Program

Co-sponsoring Agency(ies): N/A

Is this a construction project?:
No

RESTORE Act Priority Criteria:
(I) Projects that are projected to make the greatest contribution to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region, without regard to geographic location within the Gulf Coast region.
(II) Large-scale projects and programs that are projected to substantially contribute to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast ecosystem.
(III) Projects contained in existing Gulf Coast State comprehensive plans for the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region.
(IV) Projects that restore long-term resiliency of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands most impacted by the Deepwater Horizon oil spill.

Priority Criteria Justification:
#1 Projects that are projected to make the greatest contributions. Improving water quality is a foundational restoration action that will yield the greatest contributions to restoring and protecting coastal living and marine resources.
#2 Large scale projects that substantially contribute. Water quality is a pervasive concern across the Gulf coast and implementing large scale repairs, upgrades, and/or alternative treatment solutions will substantially contribute to downstream ecosystem health of multiple coastal habitats and coastal living marine resources.
#3 Projects contained in existing Gulf State comprehensive plans. Water quality has been identified in the Coastal Alabama River Basin Management Plan (5), the Mobile Bay National Estuarine Program Comprehensive Conservation Management Plan (6) as well as the National Wildlife Federation (7) planning documents as being a priority for Gulf-wide restoration.
#4. Long term resiliency. Water quality improvement, and the decrease of point and non-point source pollution into receiving waters enhances the long-term resilience of multiple coastal and marine living resources by improving water column integrity.

Project Duration (in years): 10

Goals

Primary Comprehensive Plan Goal:
Restore Water Quality and Quantity

Primary Comprehensive Plan Objective:
Restore, Improve, and Protect Water Resources

Secondary Comprehensive Plan Objectives:
N/A

Secondary Comprehensive Plan Goals:
N/A

PF Restoration Technique(s):
Reduce excess nutrients and other pollutants to watersheds: Erosion and sediment control
Reduce excess nutrients and other pollutants to watersheds: Stormwater management
Reduce excess nutrients and other pollutants to watersheds: Wastewater system improvements

Location

Location:
Coastal Alabama; Mobile and Baldwin Counties.

HUC8 Watershed(s):
South Atlantic-Gulf Region(Mobile-Tombigbee) - Mobile Bay-Tombigbee(Mobile-Tensaw)

State(s):
Alabama

County/Parish(es):
AL - Baldwin
AL - Mobile

Congressional District(s):
AL - 1

Narratives

Introduction and Overview:
Restoration of water quality has been identified as a major restoration goal by the state of Alabama and the Alabama Department of Conservation and Natural Resources (ADCNR). Multiple stakeholder engagement forums with coastal Alabama communities, municipalities, and non-governmental organizations have all prioritized the improvement of water quality for promoting ecosystem health as an important driver of restoring the environment and economy of coastal Alabama (MBNEP 2019). Within the Mobile Bay National Estuary Program (MBNEP) Comprehensive Conservation and Management Plan (CCMP), water quality was identified as one of the six guiding values (MBNEP 2019). Alabama proposes the planning and implementation of the Coastal Alabama Regional Water Quality Program (the Program). The program and projects included for implementation may include, but are not limited to: planning related work (e.g., project prioritization and selection, engineering and design, and permitting and compliance activities), construction of stormwater and wastewater management systems (including upgrades and repairs to existing systems), low impact development/green infrastructure activities, and septic to sewer conversions. Prior to conducting engineering and design and/or construction activities, ADCNR will develop a process for project identification and project selection. Engineering and design, permitting, and implementation would be conducted according to State and Federal engineering and design guidelines and construction standards.

There are five goals within the RESTORE Councils comprehensive plan. This Program addresses one of those goals, Goal #2: Restore Water Quality and Quantity. The Program ties in with RESTORE Councils primary objective of Restore, Improve, and Protect Water Resources.

Under the 2016 Comprehensive Plan update the Council advanced the following commitments:

- Regional ecosystem-based approach to restoration: Through extensive collaboration engagement opportunities as a result of the CPS support funds, it is clear that water quality is a priority goal for the Restore Council members from Florida to Texas. Addressing water quality degradation and impairment is a foundational component of restoring/enhancing a host of living and coastal marine resources. Addressing water quality sustains multiple elements of local Alabama coastal stakeholder communities as well as regional resilience to multiple living coastal marine resources within Mississippi, and across the Gulf, cultures, economies, and societies are sustained by ecological services that are impacted by water quality issues
- Leveraging resources and partnerships: The State of Alabama has invested significant funding under National Fish and Wildlife Foundation Gulf Environmental Benefit Fund (NFWF-GEBF) as well as the initial Funded Priorities List (FPL) into developing watershed planning documents that have opportunities to fund prioritized water quality related improvement projects. Additionally, the Alabama Recovery Council has identified several Direct Component (B1) and Spill Impact component (B3) water quality improvement projects that would leverage and coordinate with planning process and eventual project selection under this program. Lastly, GOMESA funding is anticipated to be leveraged into the implementation of this water quality improvement program, maximizing the number of projects that could get implemented and providing unforeseen contingency funding if needed.
- Engagement, Inclusion, and Transparency: Since 2010, ADCNR and the State of Alabama have provided multiple opportunities for the public to identify restoration funding priorities. Water quality improvement has been a strong and consistent theme in this public input. Within the MBNEP

stakeholder engagement efforts for the CCMP development, water quality, its assessment and improvement, are identified as a priority restoration activity.

- Science-based decision-making: Utilizing the best available science available to ADCNR as well as relying on the local knowledge of the cities and municipalities to water quality issues, wastewater and stormwater maintenance concerns and repair history, ADCNR would prioritize and select water quality projects for implementation. Additionally, technical expertise would be provided through a small technical work group during the project evaluation and categorization process.
- Delivering results and measuring impacts: Monitoring the pervasive water quality degradation and the indirect impacts on living coastal and marine resources is challenging. This program would monitor individual projects (impact dependent on purpose) and roll up water quality improvements from a construction, E&D, and permitting perspective to gauge broader program success.

The improvement of water quality conditions has multiple environmental benefits. Through water quality improvement (i.e., nutrient and other pollutant reduction) multiple living coastal marine resources benefit, including humans. A decrease in nutrient loads into downstream receiving water bodies reduces the development of algal blooms (as well as harmful algal blooms) reducing the opportunity for hypoxia to develop and result in mortality of sedentary benthic organisms and harm to mobile marine resources such as fisheries. Water quality degradation of coastal water bodies in Alabama is a both an economic (recreational and commercial) and environmental stressor. Bacterial and nutrient loading from pollutant sources results in harmful algal blooms, oyster reef closures, hypoxia development, and thus indirect consequences on coastal workforce and economies.

Total Cost: $40,000,000. Water quality implementation is scalable, with 90% of these funds being used for implementation.
Timeline: 10 years.

ADCNR would work and partner with coastal cities, municipalities and utility associations to implement water quality improvement program objectives. This Program aligns with the planning framework approach to reduce excess nutrients and other pollutants to watersheds and downstream receiving waters. Further, this program would utilize planning framework techniques including storm-water management, erosion and sediment control, and wastewater system improvements.

Proposed Methods :

The Program would be very similar to the water quality improvement programs being proposed by the State of Florida, Mississippi, and Texas. Alabama's program is eligible and would immediately support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region (GCERC, 2016). Activities within this specific proposed program could run concurrently and would include, but not be limited to the following:

- Planning, project identification, project vetting, and project selection;
- engineering and design (E&D), and permitting;
- conversion from septic to sewer in coastal communities; and
- implementation of new or repairing/upgrading existing stormwater and wastewater systems.

Planning, Project Identification, and Selection: In order to fund any engineering and design and construction projects ADCNR would develop a process for project identification and project selection. A proposed selection process that would be implemented after the Program is approved is described below.

Application Preparation: An application narrative would be put together that could include, but not be limited to, the following:

- water quality improvement activities proposed;
- location and receiving water body that it would impact;
- current impairments/ degradation of receiving water body;
- potential community need;
- ecological benefits of implementation;
- possible resiliency considerations; and
- matching funds / leveraging opportunities.

The project application window would be open between 45 – 60 days. Within this application window ADCNR would hold an info session / webinar for potential applicants.

Technical Team Review: A small technical group would review proposals according to an evaluation process that would review the information provided, address additional logistical considerations and additional evaluation criteria, as determined by ADCNR and the technical group. The technical group would categorize projects as follows:

- Category 1: those projects which have the potential to be most beneficial and/or that are closer to implementation;
- Category 2: Those projects which represent a medium priority or benefit;
- Category 3: Those projects that do not have enough information to make decisions or that are a better fit for another funding source.
- ADCNR reserves the right to move projects between categories.

Public Comment: The categorized project list would be presented to the public via a webinar or public meeting to receive public input in order to further evaluate and refine and reprioritize the list as appropriate. ADCNR, with the support of the technical team, would evaluate funding availability and leverage opportunities and would meet with the potential sub-recipients to get additional information on the projects as needed.

Project Selection: ADCNR, with input from the technical team, will select a slate of projects for inclusion in the program. The slate of projects could include several alternates given possible logistical considerations and budget changes. ADCNR would engage the RESTORE Council on Category 1 and Category 2 projects, respectively, based on environmental compliance needs or inclusion, and would initiate the grant application process on behalf of the sub-recipient with the RESTORE Council.

E&D and Permitting: Engineering, design, and permitting of the identified projects would be considered for funding utilizing standard engineering practices, including certified and stamped plans. Depending on the style and type of system upgrade (conventional gravity sewers, pumping stations, treatment works, etc.), repair or construction, standard engineering principles or guidelines would differ. Specific engineering guidelines would be informed by Alabama state agency policy decisions.

Implementation: Implementation within the water quality improvement program would focus on stormwater and wastewater improvement practices. Any implementation would follow standard construction and environmental practices, and any other applicable state and federal requirements (Walsh et al., 2005a, b; Hogan and Walbridge, 2007; Walsh et al., 2016). Implementation could include a broad range of activities to treat and improve water quality moving downstream, including, but not limited to:

- connection of existing septic systems to main line sewer infrastructure;

- crushing and filling of discontinued septic systems;
- upgrades, repairs, and replacements of sewer lines, including cure in place pipe (CIPP) technologies;
- wastewater treatment plants, stormwater connections, manholes, and pump stations; and
- installation of water control structures and integration of existing drainage canals with green infrastructure.

Design teams could consider additional resources on new technologies tied to upgrades and improvements to wastewater collection systems (Sterling et al., 2010; FDEP, 2018) based on existing system needs, environmental/ permitting requirements and restrictions. All construction would be conducted following specific Alabama guidelines for construction practice implementation (e.g., The Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction sites and urban Areas; ASWCC, 2018). Additionally, this program would be coordinated with other water quality improvement efforts under other Deepwater Horizon related funding streams, including water quality activities funded under B1 and B3 through the Alabama Recovery Council as well as leveraged with $30 million of GOMESA funding.

Environmental Benefits:

Elevated nutrient and bacterial loading and harmful algal bloom development are water quality problems that reoccur in Alabama coastal waters. Restoration and improvement of the quality of water, as a natural resource, would benefit the marine/coastal ecosystems, habitats, and fisheries within Alabama waters, and regionally within the Gulf. Water quality impacts of nutrient and bacterial pollution in coastal systems is a global phenomenon (Mallin et al., 2000; Bennett et al., 2001; Diaz and Rosenberg, 2008; Vörösmarty et al., 2010; Lymer et al., 2018; O'Mullan et al., 2019). A change in water quality is often associated with changes in water column conditions (i.e., hypoxia, eutrophication, and bacterial loads). The most visible water quality degradation is often associated with urban runoff, as well as discharge and sanitary sewer overflow issues, all of which are associated with wastewater management. There are numerous studies and governmental reports that point to SSOs, overflow issues, and other infrastructure failures impacting and contributing to decreases in water quality in downstream receiving systems, shellfish bed closures, and other environmental problems (e.g., EPA, 2004). The EPA estimates that there are at least 23,000 – 75,000 sanitary sewer overflows (SSOs) per year in the U.S. (EPA, N.D.), many of which are not specifically associated with impaired water listings, TMDLs, or other criteria.

The Program has the following objectives to improve water quality entering into Alabama coastal waters: 1) evaluation and assessment; 2) E&D and permitting; 3) implementation; and 4) monitoring.

Evaluation: Systematic water quality evaluation and assessment would identify the source, dynamics, and cost effective stormwater and wastewater improvement practices to improve water quality (Park et al., 1994; Sharpley et al., 2007; Spellman, 2008). A project evaluation and categorization process could inform project selection.

Engineering and Design: Engineering, design, and permitting of the identified solutions (standard engineering practices, including certified and stamped plans) would be informed by respective state engineering design standards. This objective identifies and evaluates wastewater related problems; assembles basic information; presents criteria and assumptions; and examines alternate projects with preliminary plans and cost estimates.

Implementation: Implementation of designed stormwater and wastewater improvement practices would follow standard construction and environmental practices, and any other applicable state and federal requirements (Walsh et al., 2005a, b; Hogan and Walbridge, 2007; Walsh et al., 2016). In

addition, all implementation activities would follow construction best management practice requirements to mitigate both on-site and off-site environmental and societal risks (e.g., ASWCC, 2018)

Monitoring: Success monitoring would document project outcomes and project-specific changes to downstream receiving waters (Fu et al., 2019; Tolouei et al., 2019). This would include monitoring the success of the respective practices (Kondolf and Micheli, 1995; Spellman, 2008; Lindenmayer and Likens, 2009a, 2009b; Reynolds et al., 2016), specifically wastewater discharges.

The methodologies and objectives in the Scope of Work section follow best available science for water quality improvement projects, are scientifically defensible, and allow for an on-the-ground operational decision-making process to best improve water quality.

Metrics:

Metric Title: PRM011 : Restoration planning/design/permitting - # E&D plans developed : Planning, Research, Monitoring
Target: 2
Narrative: The number of E&D plans would indicate the number of water quality implementation projects moved forward to implementation.

Metric Title: PRM013 : Restoration planning/design/permitting - # environmental compliance documents completed : Planning, Research, Monitoring
Target: 2
Narrative: The number of permits/compliance documents would indicate the number of water quality implementation projects moved forward to implementation.

Metric Title: PRM004 : Monitoring - # monitoring programs implemented : Planning, Research, Monitoring
Target: 2
Narrative: The number of monitoring programs would be dependent on number of projects implemented.

Metric Title: RES002 : Watershed management - # upgrades to stormwater and/or wastewater systems : Watershed Management
Target: 2
Narrative: The number of implementation activities would indicate the number of projects implemented for water quality improvement.

Risk and Uncertainties:
There are several risks and uncertainties related to water quality improvement and the construction and implementation of water quality improvement projects.

Practice Implementation: Typically, cities and municipalities have working on the ground knowledge of the best infrastructure repairs and upgrades. Entities may be unsure about the water quality improvement benefits associated with a variety of newer technological options versus traditional repairs and upgrades. Planning and research around benefits of respective technologies reduces the risk and uncertainty of practice implementation.

Cost: Implementation costs may be highly variable considering undiscovered issues and logistics

associated with newer technologies. Not being able to measure water quality improvements resulting from new technologies is a typical concern. The risk associated with undetectable improvements can be mitigated with due diligence and appropriate, tailored, monitoring targeting the area of concern. Uncertainty is further reduced by specifying tasks and objectives for planning and evaluation, clarifying and targeting the scientific basis for implementation, determining the types of practices implemented, which can result in respective costs reduction. Diligent project management and oversight is a key element of mitigating these risks.

Experience: Cities and municipalities are potential subaward recipients that, with long-term experience in implementing wastewater and stormwater improvement projects across coastal Alabama. They are familiar with environmental and societal risks associated with the implementation of a variety of practices and, working with ADCNR would ensure that appropriate mitigation measures (best management practices) are in place. Risk considerations include environmental degradation from construction practices and mitigating offsite effects. Risks are mitigated in the near-term through the use of best management practices for erosion and sediment control, sediment (ASWCC, 2018). The implementation of the water quality improvement reduces the long-term environmental risk.

Sea Level / Storm surge: Sea level rise and storm surge are two risks and uncertainties to project implementation performance. Hummel et al. (2018) summarized a national assessment of coastal wastewater treatment facilities at risk for sea level rise. The Gulf coast of Alabama and Mississippi was classified as low risk, with low exposure across a sea level rise gradient from 1ft to 6ft. Given the variability in sea level rise prediction as well as the anticipated immediate ecosystem service benefits of the implementation of sewer and wastewater infrastructure, is unlikely that pipe infrastructure implementation would consider sea-level rise. However, with respect to storm surge, certain upgrades (i.e., pump stations, backflow valves, electrical connections etc.) could be based on storm surge predictions and to ensure lack of failure under those conditions.

Monitoring and Adaptive Management:

Monitoring would occur at the program and -project-specific level. Programmatic monitoring would rely on rolling up of individual project outcomes and the option to include a broader network of water quality monitoring stations and advisory databases to identify potential long-term changes that are a result of project implementation. Project-specific monitoring would include documentation of water quality improvements for the identified water resource issues (i.e., nutrients, sediment, bacteria, inflow and infiltration). As-built monitoring would include surveys and other data collection as needed. Pre-implementation and post-implementation monitoring for degradation sources would be monitored to observe trends over time which could be compared to long-term advisory information. There is the potential to document changes, but that will be highly dependent on the availability of data. Trends could also be paired with water flow and climate data to provide data for any documented changes. Additional monitoring that could take place for construction improvements could include pressure gauge and/or smoke testing, infiltration and inflow (I&I) testing and modelling, etc. Post implementation monitoring would identify project-specific outcomes. Each project could be adaptively managed based on outcomes from monitoring. Any project-specific monitoring metrics or measures identified would be cross-referenced with NRDA MAM manual (DWH 2017) as well as any associated water quality monitoring guidance from the Council Monitoring and Assessment Work Group.

In addition to the Program-wide metrics described, additional metrics may be added on a project specific basis, including but not limited to:

- Reduction in nutrient loading (HM001, HM002, HM003, etc.);
- Reduction in bacterial loading (no existing metric);
- Reduction in suspended sediment (e.g., HM004); and/or

- Upgrades to stormwater and/or wastewater systems (e.g., RES002).

These potential metrics would be assigned on a project-specific basis and all required documentation (ODP, DMP, GIS, etc.) would be provided at that time.

Data Management:

To the extent practicable, environmental and biological data generated during monitoring activities would be documented using standardized field datasheets. If standardized datasheets are unavailable or not readily amendable to record project-specific data, then project-specific datasheets will be drafted prior to conducting any project monitoring activities. Original hardcopy datasheets, electronic notes, notebooks, and photographs would be retained by the ADCNR. Relevant project data that are handwritten on hardcopy datasheets or notebooks would be transcribed (entered) into standard digital format. All data would have properly documented FGDC/ISO metadata, a data dictionary (defines codes and fields used in the dataset), and/or a Readme file as appropriate (e.g., how data was collected, QA/QC procedures, other information about data such as meaning, relationships to other data, origin, usage, and format – can reference different documents). Electronic data files will be named with the date on which the file was created and will include a ReadMe file that describes when the file was created and by whom, and any explanatory notes on the file contents. If a data file is revised, a new copy will be made and the original preserved. Data would be made publicly available and accessible on a website that is still to be determined.

Collaboration:

Through the FPL collaborative planning process, Alabama identified an opportunity for a large-scale, multi-member, coordinated program for improving Water Quality across the Gulf. The States of Alabama, Florida, Mississippi, and Texas all share a collaborative desire to improve water quality, with Mississippi and Florida sharing watersheds and boundary waters to enhance regional water quality opportunities. The State of Alabama, via the Mobile Bay National Estuary Program, has funded the development of several watershed plans that have included grassroots engagement of coastal Alabama stakeholders to determine priorities as well as potential restoration actions and activities to address those restoration priorities. Water quality has shown to be a priority restoration objective for the stakeholders of coastal Alabama.

Public Engagement, Outreach, and Education:

ADCNR and the State of Alabama held a restoration summit in 2018 as well as several meeting for the Councils' planning framework for FPL 3. Water Quality was one of the priorities that was identified by the coastal stakeholders at the Summit. In addition, the Alabama Recovery Council public engagement effort resulted in several Bucket 1 and Bucket 3 Water Quality projects that were prioritized for funding.

To further facilitate Alabama stakeholder prioritization of water quality as a restoration priority, and to encourage transparency throughout the program life, there would be two info / webinar sessions during the project selection process:

- The first would be for potential applicants to provide additional thoughts, questions, and solicit input around proposed water quality improvement ideas;
- The second would be to provide decisions / results of project categorization process for all submitted projects

This second webinar would provide the public an opportunity to see the results of project categorization, and obtain feedback and comments on the projects. This information could be

incorporated into the final DCNR decision making process for final project selection.

Leveraging:

Funds: $3,000,000.00
Type: Bldg on Others
Status: Received
Source Type: Other
Description: In the 2015 Initial FPL, the Council funded the development of watershed plans for this geographic area, the establishment of an estuary program, and the implementation of submerged aquatic vegetation (SAV) restoration and monitoring.

Environmental Compliance:
This Program would partition funding between Category 1 Planning and Category 2 Implementation funding. Coordination is ongoing with several federal council members for the discovery and use of NEPA documentation, including categorical exclusions (CEs) to maximize the amount of funding placed into Category 1. It is well understood that funding placed in Category 2 is not guaranteed and is determined by NEPA.

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Budget

Project Budget Narrative:
A total of $40,000,000 is being requested from FPL 3b to fund planning, implementation and monitoring associated with the Program. This project is saleable. The funds being requested are solely intended to be used to determine and implement water quality related infrastructure improvement implementation. Any additional leveraging and cost sharing, from respective cities, municipalities, or additional DeepWater Horizon related funding streams are not part of this request. An estimated 90% is being requested for construction and project implementation. Implementation within the Program may include, but is not limited to, program management, individual project management, project implementation related work (e.g., engineering and design, any required permitting), construction of stormwater and wastewater management systems (including upgrades and repairs), as well as possible septic to sewer conversions. An estimated 5% is being requested for project planning activities such as program planning, project selection and identification, as well as project administration, including administrative programmatic functions, coordination, and sub-recipient / contractual support for project implementation. An estimated 4% is being requested for monitoring and adaptive management activities to ensure progress is made towards water quality improvement. An estimated 1% is being requested for data management activities.

Total FPL 3 Project/Program Budget Request:
$ 40,000,000.00

Estimated Percent Monitoring and Adaptive Management: 4 %
Estimated Percent Planning: 5 %
Estimated Percent Implementation: 90 %
Estimated Percent Project Management: 0 %
Estimated Percent Data Management: 1 %
Estimated Percent Contingency: 0 %

Is the Project Scalable?:
Yes

If yes, provide a short description regarding scalability.:
The scalable nature of water quality improvement program is tied to the number of projects implemented. The size and cost of a specific project is typically not scalable based on the maintenance, repair, or replacement that needs to occur to reduce and remove the water quality degradation source.

Environmental Compliance[1]

Environmental Requirement	Has the Requirement Been Addressed?	Compliance Notes (e.g.,title and date of document, permit number, weblink etc.)
National Environmental Policy Act	N/A	Note not provided.
Endangered Species Act	N/A	Note not provided.
National Historic Preservation Act	N/A	Note not provided.
Magnuson-Stevens Act	N/A	Note not provided.
Fish and Wildlife Conservation Act	N/A	Note not provided.
Coastal Zone Management Act	N/A	Note not provided.
Coastal Barrier Resources Act	N/A	Note not provided.
Farmland Protection Policy Act	N/A	Note not provided.
Clean Water Act (Section 404)	N/A	Note not provided.
River and Harbors Act (Section 10)	N/A	Note not provided.
Marine Protection, Research and Sanctuaries Act	N/A	Note not provided.
Marine Mammal Protection Act	N/A	Note not provided.
National Marine Sanctuaries Act	N/A	Note not provided.
Migratory Bird Treaty Act	N/A	Note not provided.
Bald and Golden Eagle Protection Act	N/A	Note not provided.
Clean Air Act	N/A	Note not provided.
Other Applicable Environmental Compliance Laws or Regulations	N/A	Note not provided.

[1] Environmental Compliance document uploads available by request (restorecouncil@restorethegulf.gov).

Maps, Charts, Figures

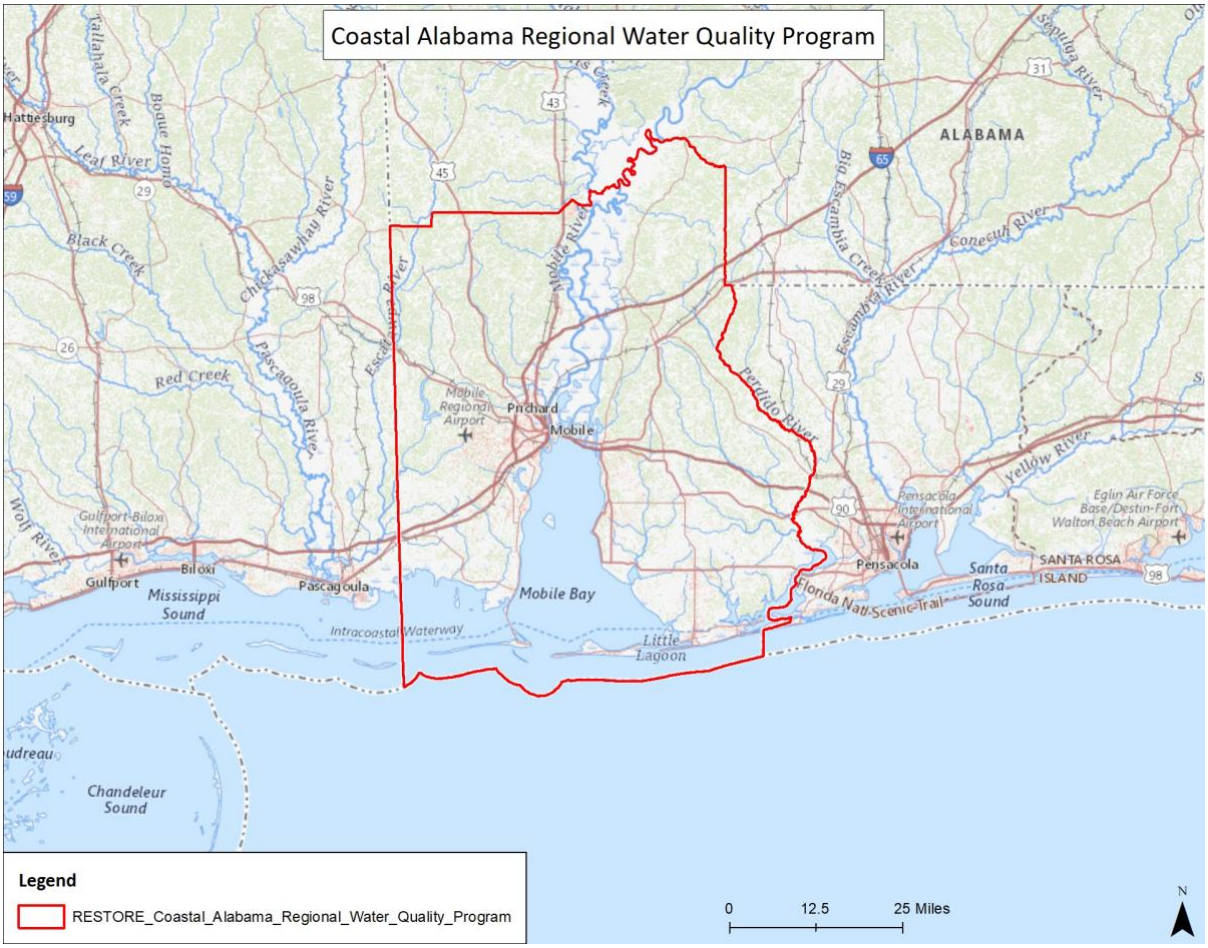

Figure 1 : Map of Program Area

FPL 3b Internal Staff Review of Proposal Submitted 4/24/2020

Project/Program	Coastal Alabama Regional Water Quality Program		
Primary Reviewer	Matt Love	Sponsor	Alabama
EC Reviewer	Heather Young	Co-Sponsor	

1. Is/Are the selected Priority Criteria supported by information in the proposal?	Yes
Notes	

2. Does the proposal meet the RESTORE Act geographic eligibility requirement?	Yes
Notes	

3. Are the Comprehensive Plan primary goal and primary objective supported by information in the proposal?	Yes
Notes	

4. Planning Framework: If the proposal is designed to align with the Planning Framework, does the proposal support the selected priority approaches, priority techniques, and/or geographic area?	Yes
Notes	

5. Does the proposal align with the applicable RESTORE Council definition of project or program?	Yes
Notes	

6. Does the budget narrative adequately describe the costs associated with the proposed activity?	No
Notes	Council staff recommend that the sponsor edit the budget narrative to specifically identify the amount of funding being requested in FPL Category 1 and FPL Category 2. The proposed budget indicates that approximately 10% of the overall program cost would be dedicated to planning, monitoring and data management. The budget narrative indicates that 90% of funding is requested for construction and implementation and places the construction and implementation components of this program in FPL Category 2. Management and oversight activities such as program management and individual project management are also included in implementation. Council staff

	recommend that the sponsor consider revising the proposed budget narrative to include program management, individual project management, site-specific planning activities such as engineering, design, and permitting as components of the overall planning portion of the budget, and making it clear that these planning activities are proposed for funding in FPL Category 1. This is particularly important for program management, which should occur throughout the duration of the program, but has no specific amount budgeted under the proposal. Since a portion of the requested funding would be put toward construction (e.g., construction of stormwater and wastewater management systems and installation of septic to sewer), Council staff recommend the answer to the question "Is this a construction project?" be revised from "no" to "yes". Finally, Council staff recommend including a statement in the budget narrative that the need for contingency costs will be considered as appropriate when developing individual project-specific budgets for construction activities.

7. Are there any recommended revisions to the selected leveraged funding categories?			No
Notes			

8. Have three external BAS reviews been completed?	More information needed
Notes	Please see the external BAS review comments, and external reviews summary attached with these review comments.

9. Have appropriate metrics been proposed to support all primary and secondary goals?	No
Notes	1) Metric "PRM004, # monitoring programs implemented" is appropriate to include if monitoring entails more than just project-level monitoring, as may be described in the proposal: "rolling up of individual project outcomes and the option to include a broader network of water quality monitoring stations and advisory databases to identify potential long-term changes that are a result of project implementation." Council staff suggest that the proposal should be revised to either provide a metric target of 1 monitoring program for all projects or to remove the metric, as appropriate. 2) The Monitoring and Adaptive Management section states that project-specific monitoring would include identified resource issue(s) such as nutrients, sediment, bacteria, inflow and infiltration, and provides a list of metrics that could be added on a project-specific basis. This information should be included in the metrics section of the proposal in order to demonstrate how progress toward the primary goal of this program (i.e., Restore water quality and quantity) would be supported. Council staff recommend metrics "HM001 - Lbs. N avoided or removed", "HM003 - Lbs. P avoided or removed", "HM004 - Lbs. sediment avoided or removed", and "RES004 - CFU Reduction in bacterial loads". Each metric need not apply to each potential project under a proposed program. Each metric need not apply to each potential project under a proposed program. Should the proposed program be selected for

	funding, metrics may be added, removed, or replaced, and metric targets may be adjusted, as appropriate at the project workplan application stage.

10. Environmental compliance: If FPL Category 1 has been selected for the implementation component of the project or program, does the proposal include environmental compliance documentation that fully supports the selection of Category 1?	N/A
Notes	The sponsor is seeking funding approval (FPL Category 1) for the planning component of this program. The implementation component is listed as FPL Category 2. The Council can use its planning Categorical Exclusion to address NEPA for approval of planning and design funds. Council staff recommends revising the environmental compliance checklist to indicate "Yes" for NEPA and to add a corresponding NEPA compliance note: "The Category 1 planning activities are covered by the Council's NEPA Categorical Exclusion for planning, research or design activities (Section 4(d)(3) of the Council's NEPA Procedures). Subsequent FPL amendment(s) and additional environmental compliance will be needed to approve implementation funding for the Category 2 efforts under this program."

11. Geospatial Compliance: Have the appropriate geospatial files and associated metadata been submitted along with a map of the proposed project/program area?	More information needed
Notes	The sponsor only selected Mobile-Tensaw watershed. The GIS project boundary submitted also intersects the following HUC8 **watersheds**: 3170008 – Escatawpa, 3150204 - Lower Alabama, 3170009 - Mississippi Coastal, 3160205 - Mobile Bay, 3140106 – Perdido, 3140107 - Perdido Bay. Council staff suggests adding these to the selected watersheds.

FPL 3a BAS Review Summary – Coastal Alabama Regional Water Quality Program

May, 2020

Overall the external Best Available Science reviews for the *Coastal Alabama Regional Water Quality Program* proposal are positive. The reviewers agree that the proposal is based on science that uses peer-reviewed literature and agency reports supporting the current state of knowledge about water quality degradation in coastal watersheds. While this issue was not raised by all reviewers, the reviewers suggest more information on local water quality trends and data would help justify the need for the program.

In general reviewers feel the program objectives are clear and supported by peer reviewed information and consistent with water quality improvement initiatives in other Gulf states. However, Reviewer 1 requests further detail on each of the four objectives of the program, and Reviewer 2 notes that although low impact development/green infrastructure is mentioned in the abstract, this suite of water quality improvement methods are not further mentioned in the proposal. All reviewers agree the supporting literature provides relevant documentation of general water quality issues and well accepted nutrient loading mitigation practices for the Gulf Coast region. However, Reviewers 1 and 2 request more references and the inclusion of preliminary data, such as the inclusion of local/state level information on water quality trends.

Reviewers 2 and 3 feel the proposal provides reasonable justification based on science that maximizes the quality and objectivity of information. Reviewer 1 comments that the information provided on how the funds will be implemented was too limited, although it should be highlighted that detailed budgeting information is not required at the FPL proposal stage. Reviewer 2 feels more discussion of the Mobile Bay National Estuary Program watershed management plans and projects identified within those plans would strengthen the proposal.

Reviewers 1 and 2 are concerned with a lack of evaluation of past efforts used to inform the development of the program. The commitment to water quality monitoring at the project and program level in order to evaluate success, and the supporting management of derived data are both highlighted as important for ensuring a scientific basis for action undertaken by this program. Reviewer 1 comments that very little information was provided on the types of water quality metrics that would be measured. Given the focus of this program this reviewer feels additional detail on this aspect of the proposal could be bolstered.

There was general consensus that the proposal addresses the identification of relevant risks that would impact projects implemented by this program. The plan to monitor project impact and success that may be used in adaptive management to initiate modifications if the supporting information warrants a change in course of action was supported as an important aspect of this program. While Reviewer 3 praises the proposal's discussion of sea-level rise and climate change, Reviewer 2 feels expanding consideration of these risks would help ensure investment in projects will have a quality lifespan for the program. It is also noted that compiling information from similar projects in the region could provide lessons learned, develop guidance on specific

challenges, and help troubleshoot the challenges of potential risks. Reviewer 2 also suggests the goal of ensuring the program will research new technological advances in stormwater and wastewater and be incorporated as a general practice should be foundational to prevent institutional knowledge or past practices limiting the program's potential.

While Reviewer 1 is unclear whether the proposal sponsors and partners have demonstrated experience in implementing similar projects, Reviewers 2 and 3 recognize the experience provided by partners at the county and municipal level provide expertise for implementation of water quality projects targeted for this program. They praise the proposal for looking to leverage information and interests of similarly proposed programs in other Gulf states.

Reviewers 1 and 2 feel additional detail on methods is warranted to strengthen the proposal, such as the project evaluation and categorization process, which serves an additional benefit of removing selection bias. Reviewer 2 is concerned that the proposal states this process will help inform decisions but not serve as the systematic process of project selection. Finally, the technical advisory committee is highlighted as a great addition to this process but a better definition of the committee composition is suggested to ensure representation of expertise in science of each of the water quality stressors.

Coastal Alabama Regional Water Quality Program
Response to BAS Reviewer Comments

Response to External BAS Reviewer Comments

1. Overall the external Best Available Science reviews for the *Coastal Alabama Regional Water Quality Program* proposal are positive. The reviewers agree that the proposal is based on science that uses peer-reviewed literature and agency reports supporting the current state of knowledge about water quality degradation in coastal watersheds. While this issue was not raised by all reviewers, the reviewers suggest more information on local water quality trends and data would help justify the need for the program.

Response:
The Alabama Department of Environmental Management (ADEM) is responsible for monitoring the quality of Alabama's waterbodies. Information on the 2020 list of waterbodies impaired for human-derived pathogens has been added to the proposal. Additional information and references regarding water quality assessments by waterbody have been included in the proposal.

2. In general reviewers feel the program objectives are clear and supported by peer reviewed information and consistent with water quality improvement initiatives in other Gulf states. However, Reviewer 1 requests further detail on each of the four objectives of the program, and Reviewer 2 notes that although low impact development/green infrastructure is mentioned in the abstract, this suite of water quality improvement methods are not further mentioned in the proposal. All reviewers agree the supporting literature provides relevant documentation of general water quality issues and well accepted nutrient loading mitigation practices for the Gulf Coast region. However, Reviewers 1 and 2 request more references and the inclusion of preliminary data, such as the inclusion of local/state level information on water quality trends.

Response:
Edits have been made to the proposal to identify potential project-specific metrics. The final selection of these metrics will depend on the nature of the work proposed but could include: pounds of nitrogen removed or avoided, pounds of phosphorus removed or avoided, pounds of sediment removed or avoided and CFU reduction in bacterial loads. Additional references to low impact development were added to the proposal. Additional detail on the 4 bulleted objectives can be found in the methods section.

3. Reviewers 2 and 3 feel the proposal provides reasonable justification based on science that maximizes the quality and objectivity of information. Reviewer 1 comments that the information provided on how the funds will be implemented was too limited, although it should be highlighted that detailed budgeting information is not required at the FPL proposal stage. Reviewer 2 feels more discussion of the Mobile Bay National Estuary Program watershed management plans and projects identified within those plans would strengthen the proposal.

Response:
The Mobile Bay NEP plays a critical role in the development of watershed management plans (WMPs)in the area. These watershed plans identify water quality as an issue of paramount importance to

stakeholders. In addition to the sections where the NEP's work is already mentioned, edits have been made to the proposal to include consideration of WMPS plans and the priorities identified by watershed stakeholders.

4. Reviewers 1 and 2 are concerned with a lack of evaluation of past efforts used to inform the development of the program. The commitment to water quality monitoring at the project and program level in order to evaluate success, and the supporting management of derived data are both highlighted as important for ensuring a scientific basis for action undertaken by this program. Reviewer 1 comments that very little information was provided on the types of water quality metrics that would be measured. Given the focus of this program this reviewer feels additional detail on this aspect of the proposal could be bolstered.

Response:
As indicated in the proposal**,** there are numerous studies and governmental reports that point to SSOs, overflow issues, and other infrastructure failures impacting and contributing to decreases in water quality in downstream receiving systems, shellfish bed closures, and other environmental problems. Maintenance and upkeep of this infrastructure helps reduce occurrence of water quality impacts. Alabama has invested significantly in water quality improvements with Deepwater Horizon Restoration Funding. Due to character restrictions in the proposal, it is not possible to identify all projects, however, references have been added to plans and documents that contain several water quality improvement projects. As the State of Alabama serves as the recipient for these projects, lessons learned will be gleaned from projects as they come online and utilized implementing this proposed program.

5. There was general consensus that the proposal addresses the identification of relevant risks that would impact projects implemented by this program. The plan to monitor project impact and success that may be used in adaptive management to initiate modifications if the supporting information warrants a change in course of action was supported as an important aspect of this program. While Reviewer 3 praises the proposal's discussion of sea-level rise and climate change, Reviewer 2 feels expanding consideration of these risks would help ensure investment in projects will have a quality lifespan for the program. It is also noted that compiling information from similar projects in the region could provide lessons learned, develop guidance on specific challenges, and help troubleshoot the challenges of potential risks. Reviewer 2 also suggests the goal of ensuring the program will research new technological advances in stormwater and wastewater and be incorporated as a general practice should be foundational to prevent institutional knowledge or past practices limiting the program's potential.

Response:
The methods of stormwater and wastewater improvement will depend on the circumstance and will incorporate the best available science and engineering information in order to implement the most sustainable solution. These methods as well as the location of the project could consider any sea-level rise components when assessing project sustainability and lifespan.

6. While Reviewer 1 is unclear whether the proposal sponsors and partners have demonstrated experience in implementing similar projects, Reviewers 2 and 3 recognize the experience provided by partners at the county and municipal level provide expertise for implementation of water quality projects targeted for this program. They praise the proposal for looking to leverage information and interests of similarly proposed programs in other Gulf states.

Response:
No response required.

7. Reviewers 1 and 2 feel additional detail on methods is warranted to strengthen the proposal, such as the project evaluation and categorization process, which serves an additional benefit of removing selection bias. Reviewer 2 is concerned that the proposal states this process will help inform decisions but not serve as the systematic process of project selection. Finally, the technical advisory committee is highlighted as a great addition to this process but a better definition of the committee composition is suggested to ensure representation of expertise in science of each of the water quality stressors.

Response:
The methods utilized to conduct stormwater and wastewater improvements will depend on the circumstance and will incorporate the best available science and engineering information in order to implement the most sustainable solution. These method details will be explained for each individual project and will be evaluated during the project evaluation and categorization process. The makeup of the technical advisory committee will likely vary based on the nature of the project activities proposed, and will be finalized as the program comes online. No edits have been made to the proposal at this time.

Response to RESTORE Council Comments

Comment:
Metric "PRM004, # monitoring programs implemented" is appropriate to include if monitoring entails more than just project-level monitoring, as may be described in the proposal: "rolling up of individual project outcomes and the option to include a broader network of water quality monitoring stations and advisory databases to identify potential long-term changes that are a result of project implementation." Council staff suggest that the proposal should be revised to either provide a metric target of 1 monitoring program for all projects or to remove the metric, as appropriate. 2) The Monitoring and Adaptive Management section states that project-specific monitoring would include identified resource issue(s) such as nutrients, sediment, bacteria, inflow and infiltration, and provides a list of metrics that could be added on a project-specific basis. This information should be included in the metrics section of the proposal in order to demonstrate how progress toward the primary goal of this program (i.e., Restore water quality and quantity) would be supported. Council staff recommend metrics "HM001 - Lbs. N avoided or removed", "HM003 - Lbs. P avoided or removed", "HM004 - Lbs. sediment avoided or removed", and "RES004 - CFU Reduction in bacterial loads". Each metric need not apply to each potential project under a proposed program. Each metric need not apply to each potential project under a proposed program.

Response:
Metric PRM004 has been removed from the proposal as suggested. Additional metrics have been added in the metrics section. It is important to note that these metrics are illustrative only and are subject to change based on the type of projects implemented.

Comment:
The sponsor is seeking funding approval (FPL Category 1) for the planning component of this program. The implementation component is listed as FPL Category 2. The Council can use its planning Categorical Exclusion to address NEPA for approval of planning and design funds. Council staff recommends revising

the environmental compliance checklist to indicate "Yes" for NEPA and to add a corresponding NEPA compliance note: "The Category 1 planning activities are covered by the Council's NEPA Categorical Exclusion for planning, research or design activities (Section 4(d)(3) of the Council's NEPA Procedures). Subsequent FPL amendment(s) and additional environmental compliance will be needed to approve implementation funding for the Category 2 efforts under this program."

Response:
Edits to checklist to environmental compliance narrative section have been made.

Comment:
The sponsor only selected Mobile-Tensaw watershed. The GIS project boundary submitted also intersects the following HUC8 **watersheds**: 3170008 – Escatawpa, 3150204 - Lower Alabama, 3170009 - Mississippi Coastal, 3160205 - Mobile Bay, 3140106 – Perdido, 3140107 - Perdido Bay. Council staff suggests adding these to the selected watersheds.

Response:
These HUC codes were not previously available in PIPER. We will work with Council staff to include them in PIPER and they have been added to proposal narrative.

Comment:
Council staff recommend that the sponsor edit the budget narrative to specifically identify the amount of funding being requested in FPL Category 1 and FPL Category 2. The proposed budget indicates that approximately 10% of the overall program cost would be dedicated to planning, monitoring and data management. The budget narrative indicates that 90% of funding is requested for construction and implementation and places the construction and implementation components of this program in FPL Category 2. Management and oversight activities such as program management and individual project management are also included in implementation. Council staff recommend that the sponsor consider revising the proposed budget narrative to include program management, individual project management, site-specific planning activities such as engineering, design, and permitting as components of the overall planning portion of the budget, and making it clear that these planning activities are proposed for funding in FPL Category 1. This is particularly important for program management, which should occur throughout the duration of the program, but has no specific amount budgeted under the proposal. Since a portion of the requested funding would be put toward construction (e.g., construction of stormwater and wastewater management systems and installation of septic to sewer), Council staff recommend the answer to the question "Is this a construction project?" be revised from "no" to "yes". Finally, Council staff recommend including a statement in the budget narrative that the need for contingency costs will be considered as appropriate when developing individual project-specific budgets for construction activities.

Response:
Edits have been made to reflect these comments.

Response to Internal BAS Panel Comments

Comment:

A panelist suggests that providing an example of a successfully implemented water quality improvement project in Alabama could further strengthen the proposal.

Response:

A number of projects are underway but not at 100% completion. Additional detail on the number and types of projects will be added to the proposal as well as language around the types of projects that have recently been completed by minimalities/wastewater authorities in the area.

Comment:

A panelist suggests that though project selection criteria are not yet determined, describing examples of potential criteria that could help recommend a particular project could be helpful.

Response:

Additional language will be added to more explicitly make the link between the information that will be required in proposals and how that information will inform project selection.

Gulf Coast Ecosystem Restoration Council

FPL 3b Internal Best Available Science Review Panel Summary

July 2020

Introduction

On Tuesday, June 30, and Wednesday July 1, 2020 the RESTORE Council convened the Funded Priorities List (FPL) 3b Internal Best Available Science (BAS) Review Panel. The purpose of this internal panel was to use Council member-agency expertise to address external BAS review comments provided for FPL 3b submitted project/program proposals, and potentially identify project/program synergies not identified prior to proposal submission. The ultimate goal of the panel was to provide Council members with substantive best available science content to inform their decision-making.

The internal panel was convened via webinar with representatives from each of the Council's eleven member agencies present. Each BAS Panel member was provided the following:

1) Full FPL 3b proposals
2) 3 external BAS reviews for each proposal
3) Summary of external BAS reviews for each proposal
4) Proposal Sponsor's response to the BAS reviews summary
5) Any proposed revisions to the proposal

Proposal sponsors provided a brief synopsis of their proposal to the panel, a summary of comments made in external reviews, and discussed their proposed response to the external reviews. Council staff then solicited feedback from the panel on the proposal sponsor's presentation of comments and responses to those comments, and any additional BAS concerns. Council staff also solicited feedback on any existing or future synergies with other Gulf restoration activities. The proceedings of the meeting for this proposal are summarized below.

Sponsor: Alabama

Coastal Alabama Regional Water Quality Program

Justification: Provide additional information on local water quality trends and data.

- The BAS Panel agrees that Alabama has appropriately addressed this comment.

Metrics: Provide additional detail on the types of water quality metrics that would be evaluated.

- The BAS Panel agrees that Alabama has appropriately addressed this comment.

Coordination: Discussion of the Mobile Bay National Estuary Program watershed management plans and projects identified within those plans would strengthen the proposal.

- The BAS Panel agrees that Alabama has appropriately addressed this comment.

Lessons learned: Discuss success and evaluation of similar past efforts. Compiling information from similar projects in the region could provide information on lessons learned.

- A panelist suggests that providing an example of a successfully implemented water quality improvement project in Alabama could further strengthen the proposal.
- Alabama response: A number of projects are underway but not at 100% completion. Additional detail on the number and types of projects will be added to the proposal as well as language around the types of projects that have recently been completed by minimalities/wastewater authorities in the area.

Methodological details: The technical advisory committee is highlighted as a great addition to this process but a better definition of the committee composition is suggested to ensure representation of expertise in science of each of the water quality stressors. Provide additional detail on methods.

- A panelist suggests that though project selection criteria are not yet determined, describing examples of potential criteria that could help recommend a particular project could be helpful.
- Alabama response Additional language will be added to more explicitly make the link between the information that will be required in proposals and how that information will inform project selection.

Panel comments on existing or future synergies with proposed activity:
Panel members had no further comments on proposal synergies.

SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Coastal Alabama Regional Water Quality Program
Location (If Applicable): Gulf-wide
Council Member Bureau or Agency: Alabama Department of Conservation and Natural Resources
Type of Funding Requested: Planning / Implementation

Reviewed by: Reviewer 1
Date of Review: 8 May 2020

Best Available Science:

These 4 factors/elements help frame the reviewer's answers to A, B and C found in next section:

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Need more information
Comments:	
The $40M proposal includes 28 references (~$1.4M/reference), including several agency reports. Each of the four primary objectives are poorly developed but do include a few references to support the proposed plans.	

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Yes
Comments:	
This project is focused on the Mobile Bay watershed, so it directly pertains ot the Gulf Coast region. Some of the references are clearly related to the Gulf Coast region because they were produced by state agencies and/or described research in the region. Some references are more broadly focused.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
Although the number of supporting references is relatively low, the references are relevant and generally from respectable journals or state and federal agency reports. Since I don't know the individuals who are part of this proposal, it is not clear how I would go about knowing if the citations are biased.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
On pages 7-8, the PIs provide details about risks and uncertainities relevant to their project, including implementation by diverse communities with varying available infrastructure and knowledge, cost, environmental degradation, and climate change (sea level rise and storm surges). There are plans to minimize each of these risks. With that said, details are generally missing about most aspects of this proposal.	

Based on the answers to the previous 4 questions, and *giving deference to the sponsor to provide within reason the use of best available science,* the following three questions can be answered:

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer- reviewed and publicly available data?	No
Comments:	
The PIs use relatively few references to support their plans that are poorly developed. With that said, the references that are included are relevant. No preliminary data are used to support this proposal, which is a major weakness.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	No
Comments:	
This proposal provides few details about what will be done with $40M.	

Question C	
Has the applicant provided reasonable justification that the proposal is based on science that clearly documents and communicates risks and uncertainties in the scientific basis for such projects/programs?	Yes
Comments:	
As mentioned earlier in this review, the PIs do address risks and uncertainties and provide some insights about how these will be minimized or might be eliminated all together. It appears that communicating directly with project participants will be the main strategy. It is not clear if these meetings will be large and include many stakeholders or will be small and targeted for specific participants.	

Science Context Evaluation:

Question A	
Has the project/program sponsor or project partners demonstrated experience in implementing a project/program similar to the one being proposed?	No
Comments:	
Beyond outreach efforts, it is unclear if the PIs have relevant prior experience to complete this project. With that said, the PIs appear to want to leverage information and interests similarly proposed by groups in FL, MS, and TX. I do see value in developing a gulf coast wide water quality program.	

Question B	
Does the project/program have clearly defined goals objectives?	Need more information
Comments:	
On pages 6-7, the PIs provide information about their four primary objectives, including evaluation, engineering and design, implementation, and monitoring. In each case, 2 sentences are provided for each objective. Clearly, not much thought when into developing these objectives.	

Question C	
Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	No
Comments:	
Again, no details are provided about anything in the proposal, which is a major weakness.	

Question D	
Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Need more information
Comments:	
On pages 6-7, the PIs discuss the environmental benefits as well as the associated objectives of their project. They mentioned several current issues in the region and then briefly discuss how their projects aim to remediate these issues.	

Question E	
Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	No
Comments:	
On page 7, the PIs provide four metrics that will be used to gauge the success of their project, however no information is scaling to know what "success" means. Instead, the PIs simply will report number of events, permits, etc.	

Question F	
Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Need more information
Comments:	
Yes, the PIs discuss several environmental risks including long-term issues. However, only a brief mention of how their project will deal with these challenges is provided.	

Question G	
Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Need more information
Comments:	
Yes, the PIs discuss several environmental risks including long-term issues. However, only a brief mention of how their project will deal with these challenges is provided.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Need more information
Comments:	
The PIs include several relatively recent references to support their plans. However, no preliminary data are provided to support the proposal.	

Question I	
Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	No
Comments:	
The PIs will leverage interest in nearby gulf coast states with similar proposals to develop a water quality monitoring program but don't provide information regarding the evaluation of past relevant efforts.	

Question J	
Has the project/program identified a monitoring and data management strategy that will support project measures of success (i.e., metrics). If so, is appropriate best available science justification provided? If applicable, how is adaptive management informed by the performance criteria? (Captures statistical information requirement a defined by the RESTORE Act)	Need more information

Comments:

On page 9, the PIs provide their data management plan that reads more like a plan for primary research data management. Much of this project will be engineering and relevant data don't seem to be well considered.

Please summarize any additional information needed below:

On the cover page, this proposal says that it is not a "construction project" although most of the requested $40M would go towards construction. Maybe I am missing something but there is a disconnect here.

There is no detailed budget provided which is a problem regardless of the size of the budget. I am assuming that a detailed, justified budget would be provided at some point in the review process so that the PIs' plans can be fully vetted for cost effectiveness.

Near the end of the proposal, the PIs finally discuss the actual monitoring of water quality which I interpreted to be the focus of this project based on the title. There seems to be very little thought regarding what kinds of data will be collected via monitoring and how those data will be analyzed.

SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Coastal Alabama Regional Water Quality Program
Location (If Applicable): Gulf-wide
Council Member Bureau or Agency: Alabama Department of Conservation and Natural Resources
Type of Funding Requested: Planning / Implementation

Reviewed by: Reviewer 2
Date of Review: 05/06/2020

Best Available Science:

These 4 factors/elements help frame the reviewer's answers to A, B and C found in next section:

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Yes
Comments:	
The proposal objective to develop a program for water quality improvement is clear. The methods are identified appropriately, but some of the information in the abstract was not carried into the proposal, e.g. low impact development/green infrastructure was not mentioned after the abstract. While information related to national trends was provided, relevant information and trends at the local/state-based level were not and would be more applicable to the proposal.	

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Yes
Comments:	
n/a. The project pertains to the Gulf Coast region.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
The literature sources support the proposal. However, there are references that are more local (rather than national) that would be more relevant for the project. I also see good references for structural stormwater and wastewater methods, but not for low impact development/green infrastructure.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
The proposal does address uncertainties and risks relative to implementation, cost, experience, and sea level/storm surge.	

Based on the answers to the previous 4 questions, and *giving deference to the sponsor to provide within reason the use of best available science,* the following three questions can be answered:

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer- reviewed and publicly available data?	Yes
Comments:	
The proposal does a good job of identifying plans that support the need for WQ improvements. While information related to national trends was provided, relevant information and trends at the local/state-based level were not provided and would be more applicable to the proposal.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	Yes
Comments:	
The proposal is based upon multiple plans that had broad stakeholder inclusion in their development, especially the Mobine Bay NEP CCMP and watershed management plans. The CCMP and watershed management plans are referenced in the abstract and again under collaborations, but given that many of these plans are complete, referencing some example/potential projects from plans would have been a great addition to strengthen this proposal, even referencing some projects that we underway or completed. A great first step might be compiling thse projects from the plans, as well as from the Direct Component (B1) and Spill Component (B3) project lists. The inclusion of a technical committee is a great addition, but needs better definition on the committee composition to ensure upstream (stormwater/wastewater) and downstream (living and coastal resources) science are represented.	

Question C	
Has the applicant provided reasonable justification that the proposal is based on science that clearly documents and communicates risks and uncertainties in the scientific basis for such projects/programs?	Need more information
Comments:	

There was not a lot of science used to document or communicate risks. Incorporating additional sources for sea level rise and storm surge would strengthen the program and ensure sound investments in viable and sustainabale projects.

Municipalities were identified as key applicants for the program and many of these local governments are under capacity, overwhelmed, or lack critical expertise. Working to ensure additional technical expertise is available (thorugh the technical review or in an advisory capacity) will limit relying soley on the experience of municipalities and helpthem implement the best projects.

While all aspects of every kind of project cannot be know, knowledge of recent similar projects can provide lessons learned, advise on specific challenges, and help troubleshoot on specific challenges. Developing a list of projects and contacts early in program development would be useful for later application – e.g. recent wastewater projects, facility upgrades, septic conversions, green infrastructure, etc.

Science Context Evaluation:

Question A	
Has the project/program sponsor or project partners demonstrated experience in implementing a project/program similar to the one being proposed?	Yes

Comments:

The sponsor has experience in implementing projects/programs like this through past efforts with CIAP, GOMESA, and ACAMP programs. A small technical committee that will help with project evaluation is mentioned several times, but the composition has not been established. I like the idea of a technical committee to help with project review and selection. However, more information on the technical committee composition would be helpful to ensure solid technical partners with appropriate backgrounds in WQ and downstream living and coastal resource health.

As for implementation, the proposal relies on the expertise of local governments. This could be expanded with the aforementioned list of recent projects and contacts to help advise on challenging projects or where capacity is limited.

Since the proposal also references projects that could be completed by partners, like MBNEP, non-profits, and other organizations, the program should consider them as potential applicants as well.

Question B	
Does the project/program have clearly defined goals objectives?	Yes
Comments:	
The proposal is focused on water quality improvements through multiple types of projects that could be implemented as part of the WQ program, including, but not limited to, planning, stormwater, wastewater, LID and septic conversions. However, on page 4 right before methods, the partners for implementation are limited to cities, municipalities, and utility associations. Since they also reference projejcts identified in the MBNEP CCMP and watershed plans, it would seem that MBNEP, non-profits, and other organizations could be considered partners on these projects as well.	

Question C	
Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	Yes
Comments:	
The method of proposal development is well defined. The proposal state that "the project evaluation and categorization process COULD inform project selection". Why would this not be that the process WILL inform project selection? That will help remove bias from the process. They have incorporated an opportunity for public input.	

Question D	
Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Yes
Comments:	

While I completely agree with the proposal's identification of environmental benefits, the justification highlights national trends in WQ (SSOs, coastal impacts, etc), rather than the state-based information that is available through ADEM and other sources. It would seem that this state-based data would help provide a baseline for improvements based on project implementation and, thus should be considered.

Question E	
Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	Yes

Comments:

The proposal goals and metrics do align with the primary Comprehensive Plan goal. However, the justification references are national and should be local/state based.

Question F	
Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Need more information

Comments:

The proposal did address some concerns with sea level rise and storm surge, citing one source that downplays the impact. The selected projects should proactively address impacts from SLR and storm surge to the extent possible, including elevation changes, relocations, etc. FEMA flood maps and predictions (along with others) should be used as a non-biased baseline to ensure realistic projects that will have a quality lifespan given the investment.

Question G	
Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Need more information
Comments:	
Ensuring that new technological advances in stormwater and wastewater are researched and incorporated as possible is essential. It is lightly referenced in the proposal, but should be foundational. Relying solely on institutional knowledge or past practices will limit the potential for long-term sustainability, incorporation of green infrastructure options, and the ability to address climate impacts. I did not find any information on mitigating risks or addressing data gaps.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Need more information
Comments:	
The proposal provides substantive references and guides for work related to waterwater treatment, and some stormwater treatment. The proposal does not identify references or guides that inform low impact development/green infrastructure practices or showcase intergration options to make projects more sustainable for the long-term. Many of the justification references are for national data, when the more relevant and available state-based data would be more applicable.	

Question I	
Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	No
Comments:	
I did not see where the proposal evaluated past successes or failures. Knowledge of recent similar projects can provide lessons learned, advise on specific challenges, and help troubleshoot on specific challenges. Developing a list of projects and contacts early in program development would be useful for later application – e.g. recent wastewater projects, facility upgrades, septic conversions, green infrastructure, etc.	

Question J	
Has the project/program identified a monitoring and data management strategy that will support project measures of success (i.e., metrics). If so, is appropriate best available science justification provided? If applicable, how is adaptive management informed by the performance criteria? (Captures statistical information requirement a defined by the RESTORE Act)	Choose an item.

Comments:

The proposal states that projects will be monitored, specifically wastewater discharges and downstream WQ, at the project-specific and programmatic levels. This could be approached by contracting with a team, including scientists, that can cover utility based and ecological monitoring both at the project-specific and programmatic levels. This team could be retained to monitor all projects associated with this program to ensure consistency and ease of rolling the information up for a more comprehensive annual summary throughout the life of the program.

Rather than counting the number of monitoring programs in Metrics, the number of projects monitored by the monitoring team could be counted.

Data collection and management was covered adequately. This data should be made publicly available in a reasonable time frame and incorporated into existing data management sites, such as MyMobileBay or DISL, as the state's Center of Excellence.

Adaptive management activities or potential adjustments will arise based on monitoring. This is a solid approach to use monitoring to identify further needs.

Please summarize any additional information needed below:

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SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Coastal Alabama Regional Water Quality Program
Location (If Applicable): Gulf-wide
Council Member Bureau or Agency: Alabama Department of Conservation and Natural Resources
Type of Funding Requested: Planning / Implementation

Reviewed by: Reviewer 3
Date of Review: 5/8/2020

Best Available Science:

These 4 factors/elements help frame the reviewer's answers to A, B and C found in next section:

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Yes
Comments:	
The justification for the Alabama Regional Water Quality Program fits in with RESTORE goals and objectives. The methods are consistent with other Gulf states to achieve water quality improvements and are supported by the best scientific information available.	

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Yes
Comments:	
The proposal does directly relate to restoration of water quality in the Gulf coast region. Yes, the program's proposed projects are stated to be specific to the infrastructure project needs of individual counties in the study area.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
Yes, the literature cited are widely known and accepted documentation of the water quality issues and well accepted nutrient loading mitigation practices in this region.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
Yes, the proposal outlines potential uncertainties that would suggest risk to project success within the program, such as the magnitude of sea-level rise in the project area. The project has also incorporated monitoring to document project impact and success that may be used in adaptive management to suggest the prudence of future and additional projects.	

Based on the answers to the previous 4 questions, and *giving deference to the sponsor to provide within reason the use of best available science,* the following three questions can be answered:

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer- reviewed and publicly available data?	Yes
Comments:	
The project proposal is presented and justified with support of the peer-reviewed literature.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	Yes
Comments:	
Yes, the proposal indicates that both project designs will be based upon certifiable engineering principles and scientific metrics to confirm project success. Monitoring to evaluate project success and data management are iterated within in the proposal	

Question C	
Has the applicant provided reasonable justification that the proposal is based on science that clearly documents and communicates risks and uncertainties in the scientific basis for such projects/programs?	Yes
Comments:	
Yes, the program proposal is based upon the success of other Gulf States' similar approaches and methods, that are well cited as restoration successes.	

Science Context Evaluation:

Question A	
Has the project/program sponsor or project partners demonstrated experience in implementing a project/program similar to the one being proposed?	Yes
Comments:	
Yes, the Alabama Department of Conservation and Natural Resources works with its partners at the county and municipal level to implement projects to improve nutrient reductions under Clean Water Act mandate. The sub-awardee partners have long-term experience in wastewater and stormwater project implementation.	

Question B	
Does the project/program have clearly defined goals objectives?	Yes
Comments:	
Yes, the program's goals are consistent with RESTORE Goal #2 of Restoring water quality and quantity. The outlined objectives and process of achieving this the project goal are well iterated in the proposal.	

Question C	
Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	Yes
Comments:	
Yes, the Program describes a specific process of planning, design, technical review and implementation of project types that are known to effectively improve coastal water quality in other Gulf states.	

Question D	
Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Yes
Comments:	
Yes, the proposal specifically states that commonly known water quality and habitat improvement metrics will be evaluated to determine project success in terms of environmental and public health benefits. These measurable improvements metrics and mitigations of stressors are all scientifically-based for restoration projects in the region.	

Question E	
Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	Yes
Comments:	
Yes, monitoring of several critical water quality improvement metrics are stated to be an essential element of Program success evaluation for funded projects in this proposal.	

Question F	
Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
Yes. For example, scientific citations are referenced in the proposal for the vulnerability of coastal water quality restoration projects to anticipated sea-level rise rates/ storm surge associated with climate change.	

Question G	
Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
Yes, the program proposal considered specific cases of short-term implementation risk. One example is that there is risk implementing project proposals with newer technologies where benefits are anticipated but have not been demonstrated. In this case, planning and research around benefits of newer technology can mitigate risk. The proposal also mentioned the implementation of project construction BMPs to mitigate the potential environmental degredation associated with project construction.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Yes
Comments:	
Yes, the proposal addesses the potential problems with measuring water quality improvements resulting from new technologies, for example. This proposal states that this can be resolved by targeting specific a scientific basis for implementation, which may require additional resolution in project evaluation.	

Question I	
Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	Yes
Comments:	
The proposal states that sub-awardees have long-term experience with implementation of infrastructure projects and are well aware of short-term environmental and societal risks and balancing those with the predicted long-term benefits resulting from projects.	

Question J	
Has the project/program identified a monitoring and data management strategy that will support project measures of success (i.e., metrics). If so, is appropriate best available science justification provided? If applicable, how is adaptive management informed by the performance criteria? (Captures statistical information requirement a defined by the RESTORE Act)	Yes
Comments:	
Yes, this is proposed at multiple levels. First, at the programmatic level, there would be a responsibility for monitoring at a larger system scale to indicate long-term changes of several water quality metrics, for example. Monitoring and data management strategies and application to adaptive management will also be expected of sub-awardees, where an individual project may evaluate specific results, such as reduction in inflow & infiltration associated with a wastewater infrastructure project. A well iterated data management strategy is included in the proposal.	

Please summarize any additional information needed below:
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