RESTORE Council FPL 3 Proposal Document

General Information

Sponsor:
Alabama Department of Conservation and Natural Resources

Title:
Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)

Project Abstract:
Alabama, through the Alabama Department of Conservation and Natural Resources (ADCNR), is requesting $1M in Council-Selected Restoration Component funding for the proposed Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay) project. This request includes planning funds as FPL Category 1. The proposed project builds on a previous study of the Mobile Bay Causeway and hydrology conducted in 2015, and will support the primary RESTORE Comprehensive Plan goal to restore and conserve habitat through a planning effort that would: 1) address any data gaps remaining from the 2015 study, 2) evaluate the suggested restoration alternatives with a cost-logistics/feasibility frame of reference, and 3) move identified and prioritized restoration alternatives forward to a 30% preliminary engineering design.

The construction of the Mobile Bay Causeway in 1927 resulted in a significant amount of dredge material placement over large portions of the Upper Mobile Bay marsh complex. At the time, filling of marsh was a preferred alternative to elevating the causeway and as a result, restrictions of hydrological interaction and connections between Mobile Bay and its Delta, including faunal migrations and natural food web interactions have been curtailed. Proposed project activities will inform the restoration of the hydrological exchange necessary for coastal marsh and estuarine wetland habitats in the area to maintain ecological integrity and ecosystem health. Program duration is expected to be 3 years.

FPL Category: Cat1: Planning Only

Activity Type: Project

Program: N/A

Co-sponsoring Agency(ies):
AL

Is this a construction project?:
No

RESTORE Act Priority Criteria:
(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:
#3: Projects contained in Comprehensive plans: The State of Alabama has invested significant funds into the development of comprehensive plans through both NFWF-GEBF as well as RESTORE (FPL 1) funding streams. These comprehensive plans contain specific restoration alternatives and priorities that identify the restoration and protection of coastal marsh ecosystems as well as the restoration of hydrological connections within Mobile Bay as priorities.

#4: Projects that restore long-term resiliency: This area of estuarine wetland – coastal marsh in Mobile Bay, essentially the intersection of the Mobile Bay and its Delta has had hydrological connections significantly curtailed for almost a century. Restoration of hydrological connectivity is critical to ensure the long term resilience of the coastal marsh complex, especially as freshwater flow variability changes and weather related storm events increase in frequency and intensity.

Project Duration (in years): 3

Goals

Primary Comprehensive Plan Goal:
Restore and Conserve Habitat

Primary Comprehensive Plan Objective:
Restore , Enhance, and Protect Habitats

Secondary Comprehensive Plan Objectives:
N/A

Secondary Comprehensive Plan Goals:
N/A

PF Restoration Technique(s):
Restore hydrology and natural processes: Restore hydrologic connectivity

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:

The Enhancing Hydrologic Connectivity in Justins Bay (Mobile Bay) project (the Project) will support the restoration of hydrological connectivity and restore natural ecological function to areas of estuarine habitats in Mobile Bay. The construction of the Mobile Bay Causeway (Causeway) in 1927 resulted in a significant amount of dredge material placement over large portions of the Upper Mobile Bay marsh complex. At the time, filling of marsh was a preferred alternative to elevating the causeway and as a result, restrictions of hydrological interaction and connections between Mobile Bay and its Delta, including faunal migrations and natural food web interactions have been curtailed. In 2015 the Alabama Department of Conservation and Natural Resources (ADCNR) commissioned a study of the north and south regions of the Mobile Bay Causeway consisting of a historical data compilation effort, collection and analyses of sediment cores looking at sediment contaminant concentrations, ecosystem field surveys and associated hydrodynamic modelling of potential restoration alternatives. The study defined multiple restoration alternatives, including their conceptual design sheets, conceptual cost estimate calculations, and potential construction schedules. Additionally, this study identified data gaps that need to be filled prior to E&D, permitting, and implementation of restoration alternatives.

This project would be a planning effort to: 1) address data gaps remaining from the 2015 study, including a fine scale evaluation of sediments, and additional salinity and flow data collection as needed, as well as ensuring that the hydro-dynamic modelling captures current hydrological conditions, 2) evaluation of restoration alternatives with a cost-logistics frame of reference, including an evaluation of the cost of utility modifications and 3) move identified and prioritized restoration alternatives forward to 30% preliminary engineering design.

The Project addresses the Restore Council Comprehensive Plan Goal #1: Restore and Conserve Habitat. The Project will plan for the restoration and conservation of habitat within Alabama coastal waters, including priority bays and estuaries associated with the Mobile Bay system. The activity of the project, planning for the enhancement of hydrological connectivity, is consistent with RESTORE Councils primary objective of Restore, Enhance, and Protect Habitats.

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

- Regional ecosystem-based approach to restoration: There have been several sentinel documents on strategies to coastal restoration that highlight hydrological connectivity as a priority investment to an ecologically and economically sustainable coastal habitat. The Gulf Coast Ecosystem Restoration Task Force (GCERT, 2016) identified restoring and conserving nearshore habitats as a major action across the Gulf, under one of the four main restoration goals.
- Leveraging resources and partnerships: Building and leveraging on the 2015 study, this project would identify and fill gaps in information so that specific restoration alternatives can be brought forward that have considered all cost and logistical variables. All modelling work, data assimilation and compilation from the 2015 study would be used to maximize planning work and progress towards 30% preliminary E&D.
- Engagement, Inclusion, and Transparency: From the outset, ADCNR and the State of Alabama has been engaged with the public to prioritize coastal restoration. Within the MBNEP stakeholder engagement efforts for the CCMP and watershed management plan development, habitat enhancements including wetland restoration and hydrological connectivity were central tenets that also represent priority restoration activity.
- Science-based decision-making: Utilizing the best available science through the project's planning component, as well as relying on previous investments from the study of hydrological impacts in Mobile Bay, ADCNR would optimize design plans for construction to provide the most ecological benefit and reduce impacts to species and habitats in the area.

• Delivering results and measuring impacts: The proposed project would utilize work plans that would adhere to the site-specific milestones of the project. These would be documented in observational data management plans and tracked accordingly.

Environmental Benefits: It is well understood in the scientific literature that appropriate hydrological exchange is necessary for coastal marsh and estuarine wetland habitats to maintain ecological integrity and ecosystem health, as well as functioning to provide a variety of ecosystem service benefits to the system. The degree of hydrological connectivity can be a significant driver in the movement and flux of energy, organisms, and nutrients within a marsh landscape (Goecker, 2009; Roberts, 1997; Smith, 1988). A specific function of estuarine wetlands is to serve as nursery habitat for open water and estuarine dependent marine resources, to which hydrological connectivity determines the strength and integrity of that function (Swannack et al., 2019). Restoration of hydrological connectivity is critical to ensuring the long-term resilience of the coastal marsh complex, especially as freshwater flow changes and weather-related storm events increase in frequency and intensity. Robust planning is essential to the success of a large-scale project that would ultimately have a positive impact on water quality. Investing in planning now is cost-effective and increases the likelihood of success for future efforts to restore hydrologic connectivity.

Environmental Stressors: In the lower section of the Mobile-Tensaw Delta, a large causeway built in the mid to late 1920s has blocked a number of once-open bays from contact with Mobile Bay and the Gulf. By altering the seasonal variation and volume of flows, these hydrological modifications have altered the ecological function and biodiversity of one of North America's largest, most productive and diverse estuaries, on a local and system-wide basis (Valentine and Sklenar, 2006). Evidence has been found in similar situations around the world that show significant ecological changes can occur when natural hydrography is altered (Sabater and Tokner, 2009). In the Mobile Bay area, hydrological modification has affected nekton densities and assemblage structure (Rozas et al., 2013), reduced salt and fresh water exchange and altered circulation patterns (Martin and Valentine, 2012), resulting in changes in nutrient cycling (Goecker et al., 2009), frequency of occurrence and persistence of hypoxic events, and increased incidences of exotic and invasive plant species (Kauffman et al, 2018).

Total Cost: $1,000,000.

Timeline: 3 years

Partners: ADCNR will work and partner with the City of Spanish Fort, utility associations, and regulatory agencies to carry out project objectives.

This project aligns with the FPL3 Planning Framework priority approaches and techniques for Alabama by addressing the approach Restore hydrology and natural processes and technique Restore hydrologic connectivity. Additionally, the proposed project builds off of previous investments from the U.S. Fish and Wildlife Service, Department of the Interior through the Coastal Impact Assistance Program (CIAP).

Proposed Methods :

The proposed project will include the following primary activities:

Program Administration

Program administration will cover all activities associated with the project. ADCNR personnel and its contractors will provide administrative programmatic functions and/or support during the life of the grant. ADCNR (with contractual support) will undertake program management, coordination and

monitoring activities to ensure compliance with all grant agreement terms and conditions, 2 C.F.R. Part 200, 31 C.F.R. Part 34, the RESTORE Council's Standard Terms and Conditions, applicable Special Award Conditions, and applicable federal, state and local laws and regulations. ADCNR, with contractual support, will also manage the data associated with this project in accordance with the procedures outlined in the Observational Data Plan and the Data Management Plan.

Planning, Permitting and E&D

The planning component of the project will address any data gaps remaining from the 2015 study. A detailed gap analysis study will provide guidance for any critical data pieces needing to be collected before engineering and design take place. Data gap collection includes, but is not limited to, a fine resolution spatial delineation and extent of sediment contaminants in the restoration area; ecological impact studies; hydrodynamic modelling review; wave action modeling; water quality evaluation of the restoration area including potential changes to water temperature, salinity, and other parameters; and, coordination with utility owners to optimize engineering designs.

Engineering, design, and identification of permitting requirements of the identified solutions will utilize and apply standard engineering practices for similar projects, including certified and sealed plans. Engineering and design services will provide the alternatives to enhance hydrological connectivity between Justins Bay, north of the Causeway, and Mobile Bay, south of the Causeway. Anticipated future conditions related to climate change, specifically sea level rise, will be considered throughout the design process. Current and future traffic conditions will also be taken into account throughout the project. ADCNR will coordinate activities to determine design techniques for further development based on conditions specific to the project area and Best Available Science related to direct and indirect ecological benefits, including existing data and information obtained from relevant watershed management plans developed by the Mobile Bay National Estuary Program. ADCNR will identify one or more hydrological enhancement options to further develop 30% preliminary engineering and design through this project. Through this project, an opinion of probable cost will be developed to inform project construction, which is not included in the current scope of work for this project.

The preparation of preliminary engineering design plans must consider environmental permitting paths. Thus, this effort should include progressing the environmental permitting components to include determining the permits required, mitigation requirements (if applicable), and other environmental permitting considerations that may affect the engineering design and construction scheduling. The appropriate state/federal agencies will be engaged in order to understand permitting requirements for the respective design plans. Project design elements will be considered to maximize habitat quality as it relates to federally managed fish species. Further, design will take into consideration best management practices to ensure marine mammals and threatened or endangered species are not impacted. Additional activities may include environmental compliance testing of sediments, geotechnical investigations and other needs associated with site design.

Environmental Benefits:

Increased flushing and tidal communication will improve hydrology in Justins Bay (ADCNR, 2015). Hypoxia and anoxia occur naturally in estuarine systems, particularly in enclosed embayments such as Justin's Bay. With constructed openings that increase flushing and reduce retention time, episodic hypoxia and anoxia in these bays may be less frequent during warm seasons compared to the current condition (Kaufmann et al., 2018). Tidal exchange will tend to equalize salinities in the areas of influence north and south of the Causeway during periods of low river flow. The hydrodynamic modeling indicates that tidal exchange will be reduced at higher river discharge due to a general reduction of tidal forcing. During high flow conditions, freshwater dominates the delta and is likely to mask tidal exchange effects at Causeway openings. Salinity changes due to the project may not

result in measurable differences in the distributions of the predominant flora and fauna of the study area, since these groups tend to have wide salinity tolerances.

Hydrologic connectivity established by constructed openings will provide corridors for a variety of aquatic fauna migrating between upper Mobile Bay and Justins Bay (Rozas et al., 2013). Access to the SAV and fringing tidal marshes north of the Causeway will potentially increase larval and juvenile densities of important estuarine-dependent species at these locations, compared to the current condition (ADCNR, 2015). In general, the Causeway impedes faunal migration and has altered natural food web interactions in its immediate vicinity (Goecker et al., 2009). The constructed opening will restore natural function to the adjacent areas and increase wave action and mixing, which could have positive benefit to native submerged vegetation by introducing the incursion of wind-driven waves into oligohaline embayments north of the causeway that is currently over-populated with Eurasian milfoil (Martin and Valentine, 2012).

Metrics:

Metric Title: PRM010 : Research - # studies used to inform mgmt.
Target: 1
Narrative: The number of studies completed whose findings are used to adapt management/ inform management. decisions.

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

Risk and Uncertainties:

As this is a planning project that will result in a better understanding of how to restore hydrological connectivity to Justins Bay, few risks are expected. Planning and engineering design based on scientific knowledge will support avoidance of risks and uncertainties and result in the appropriate design alternatives to provide an increase in ecological function in the area. A risk involved from a regulatory perspective will be time required for the permitting process and the potential risk the Project will not get permitted. ADCNR has experience implementing engineering, design and permitting of projects through various restoration funding and will work with the relevant permitting and resource agencies to identify issues which may impact permitting and adjust accordingly. Engineering and design specifications of restoration alternatives may be adjusted based on permitting conditions.

Monitoring and Adaptive Management:

There is no monitoring associated with this project. Project outcomes including engineering designs and gap analysis studies will be tracked through the project's observational data plan and data management plan.

Data Management:

Data reporting will occur every six months, and observational data reports will be developed and submitted in compliance with the grants reporting cycle as outlined in the RESTORE Council Financial Assistance Standard Terms and Conditions and Part IV, Section G of the Recipient Guideline. Following completion of all data collection, a final observational data report will be prepared and distributed. ADCNR will store, archive and provide project data and make them publicly available on DCNR's coastal restoration website: https://www.alabamacoastalrestoration.org/.

Collaboration:

Through the FPL collaborative planning process, Alabama has identified an opportunity for estuarine restoration. This work has foundations in previous planning and research work including the 2015 feasibility study already mentioned in addition to other impact studies over the last two decades that have addressed hydrologic connectivity on the lower Mobile-Tensaw Delta (Byrnes et al.,2013; Valentine and Sklenar, 2006). The State of Alabama has invested significant funds into the development of comprehensive plans through both NFWF-GEBF as well as RESTORE (FPL 1) funding streams that contain specific restoration alternatives and priorities that identify the restoration and protection of coastal marsh ecosystems as well as the restoration of hydrological connections within Mobile Bay as priorities. The plans included grassroots engagement of coastal Alabama stakeholders to determine priorities as well as potential restoration actions and activities to address those priorities.

Public Engagement, Outreach, and Education:

The State of Alabama's prioritization of the Project is based on multiple public and stakeholder engagement activities. Throughout Alabama's restoration public engagement and planning efforts, stakeholders have consistently identified the restoration and protection of coastal habitats as a top priority. The following are examples of public engagement, outreach and education activities which were considered in the selection of this proposal:

Alabama Restoration Summit: ADCNR hosted the Alabama Restoration Summit in 2018. The public was invited to learn about restoration projects and programs and to provide input on current and future priorities for restoration. Based on the public input received, investing in coastal habitat restoration and protection continues to be a top priority of stakeholders.

Alabama Watershed Management Plans (NFWF-GEBF; RESTORE): Starting in 2013, the Mobile Bay National Estuary Program (MBNEP) has published several coastal watershed management plans (WMPs) that provide guidance for restoration. These plans depend upon public involvement and "stakeholders" who know the area, recognize its problems, and are invested in its health and resilience. Each plan includes a watershed description that educates communities about the geography, geology, biology, ecology, and hydrology of the drainage area's land and water. Although stakeholder engagement and education strategies are unique across WMPs, all of the plans have included stakeholder community meeting to gather feedback from the public

RESTORE Act Alabama State Expenditure Plan: ADCNR has solicited stakeholder input to support planning and development of the Alabama State Expenditure Plan (MSEP). Engagement with a wide range of stakeholders, including private citizens, non-governmental organizations, business owners, elected officials, and other community leaders, has informed the priorities for restoration.

Leveraging:

Funds: $500,000.00
Type: Bldg on Others
Status: Received
Source Type: Other Federal
Description: This project conducts a feasibility investigation relating to hydrologic restoration of certain areas of upper Mobile Bay/lower Mobile Tensaw Delta along the Mobile Bay Causeway (US 90/98) including the Justins Bay area.

Environmental Compliance:
Council approval of funding for this activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor does it commit the Council to a particular course of action affecting the environment. In the environmental compliance review, the Council would considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and could determine that no such circumstances apply. Accordingly, the Council could also determine that this activity is covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion (CE) for planning, research or design activities (Section 4(d)(3) of the Council's NEPA Procedures).

Bibliography:
ADCNR. 2015. Feasibility Investigation Report Restoration of Hydrology along Mobile Bay Causeway. 142 pp. Available online: http://www.mobilebaynep.com/images/uploads/library/Feasibility_Investigation_Report_Mobile_Bay_Causeway_Final.pdf. Last accessed: 4-4-2020.

Byrnes, M.R., Berlinghoff, J.L. and Griffee, S.F., 2013. Sediment Dynamics in Mobile Bay, Alabama: Development of an Operational Sediment Budget. Applied Coastal and Research Engineering Inc. Inc. Mashpee, MA. Final Report, pp.1-75. Available online: http://www.mobilebaynep.com/images/uploads/library/mobile_bay_sediment_budget_final_report_plus_appendices_032013.pdf. Last accessed: 3-25-2020

Goecker, M.E., Valentine, J.F., Sklenar, S.A. and Chaplin, G.I., 2009. Influence from hydrological modification on energy and nutrient transference in a deltaic food web. Estuaries and Coasts, 32(1), pp.173-187. Available online: https://www.researchgate.net/profile/John_Valentine/publication/226003732_Influence_from_Hydrological_Modification_on_Energy_and_Nutrient_Transference_in_a_Deltaic_Food_Web/links/0deec51783f285e2e0000000/Influence-from-Hydrological-Modification-on-Energy-and-Nutrient-Transference-in-a-Deltaic-Food-Web.pdf. Last accessed: 3-27-2020

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Kauffman, T.C., Martin, C.W. and Valentine, J.F., 2018. Hydrological alteration exacerbates the negative impacts of invasive Eurasian milfoil Myriophyllum spicatum by creating hypoxic conditions in a northern Gulf of Mexico estuary. Marine Ecology Progress Series, 592, pp.97-108. Available online: https://www.researchgate.net/publication/323020846_Hydrological_alteration_exacerbates_the_negative_impacts_of_invasive_Eurasian_milfoil_Myriophyllum_spicatum_by_creating_hypoxic_conditions_in_a_northern_Gulf_of_Mexico_estuary. Last accessed: 3-27-2020.

Martin, C.W. and Valentine, J.F., 2012. Eurasian milfoil invasion in estuaries: physical disturbance can reduce the proliferation of an aquatic nuisance species. Marine Ecology Progress Series, 449, pp.109-119. Available online: https://www.researchgate.net/publication/271252133_Eurasian_milfoil_invasion_in_estuaries_Physical_disturbance_can_reduce_the_proliferation_of_an_aquatic_nuisance_species. Last accessed: 4-1-2020.

Roberts, H.H. 1997. Dynamic changes of the Holocene Mississippi River Delta plain: the delta cycle. J Coast Res 13, 605-627

Rozas, L.P., Martin, C.W., Valentine, J.F. 2013. Effects of reduced hydrological connectivity on the nursery use of shallow estuarine habitats within a river delta. Marine Ecology Press Series 492, pp. 9-20. Available online: https://www.researchgate.net/publication/260337816_Effects_of_reduced_hydrological_connectivity_on_the_nursery_use_of_shallow_estuarine_habitats_within_a_river_delta. Last accessed: 3-25-2020.

Sabater, S. and Tockner, K., 2009. Effects of hydrologic alterations on the ecological quality of river ecosystems. In Water scarcity in the Mediterranean (pp. 15-39). Springer, Berlin, Heidelberg. Available online: https://www.researchgate.net/publication/226437115_Effects_of_Hydrologic_Alterations_on_the_Ecological_Quality_of_River_Ecosystems . Last accessed: 3-27-2020.

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Swannack, T.M., Wozniak, J.R., Grant, W.E., Davis, S.E. 2019. A tool for rapid assessment of hydrological connectivity patterns in Texas coastal wetlands: linkages between tidal creeks and coastal ponds. Texas Water Journal 10,1, 46-59. Available online: https://twj.media/wp-content/uploads/2019/06/Swannack.opt_.pdf. Last accessed: 3-25-2020.

Valentine, J. and Sklenar, S. 2006. Mobile-Tensaw Delta hydrological modifications impact study. Final report prepared for the Mobile Bay National Estuary Program. Dauphin Island Sea Lab, Dauphin Island, AL. Available online: http://www.mobilebaynep.com/site/news_pubs/research.htm. Last accessed: 4-2-2020.

Budget

Project Budget Narrative:
A total of $1,000,000 is being requested from FPL 3a to fund planning, gap analysis work, and develop 30% engineering and design for possible alternatives. An estimated 98% of this request is for project planning. Project planning will include, but is not limited to: project administration and management, including administrative programmatic functions, coordination, and sub-recipient / contractual support for project implementation; planning associated with identifying respective solutions, including gap analysis work, geo-tech, sediment sampling, etc.; engineering and design up to a 30% benchmark for identified solution(s); possible identification of permitting requirements associated with identified solution(s). An estimated 2% is being requested for data management activities. No funds are being requested for contingency, monitoring and adaptive management activities, or implementation.

Total FPL 3 Project/Program Budget Request:
$ 1,000,000.00

Estimated Percent Monitoring and Adaptive Management: 0 %
Estimated Percent Planning: 98 %
Estimated Percent Implementation: 0 %
Estimated Percent Project Management: 0 %
Estimated Percent Data Management: 2 %
Estimated Percent Contingency: 0 %

Is the Project Scalable?:
No

If yes, provide a short description regarding scalability.:
N/A

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	These 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).
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

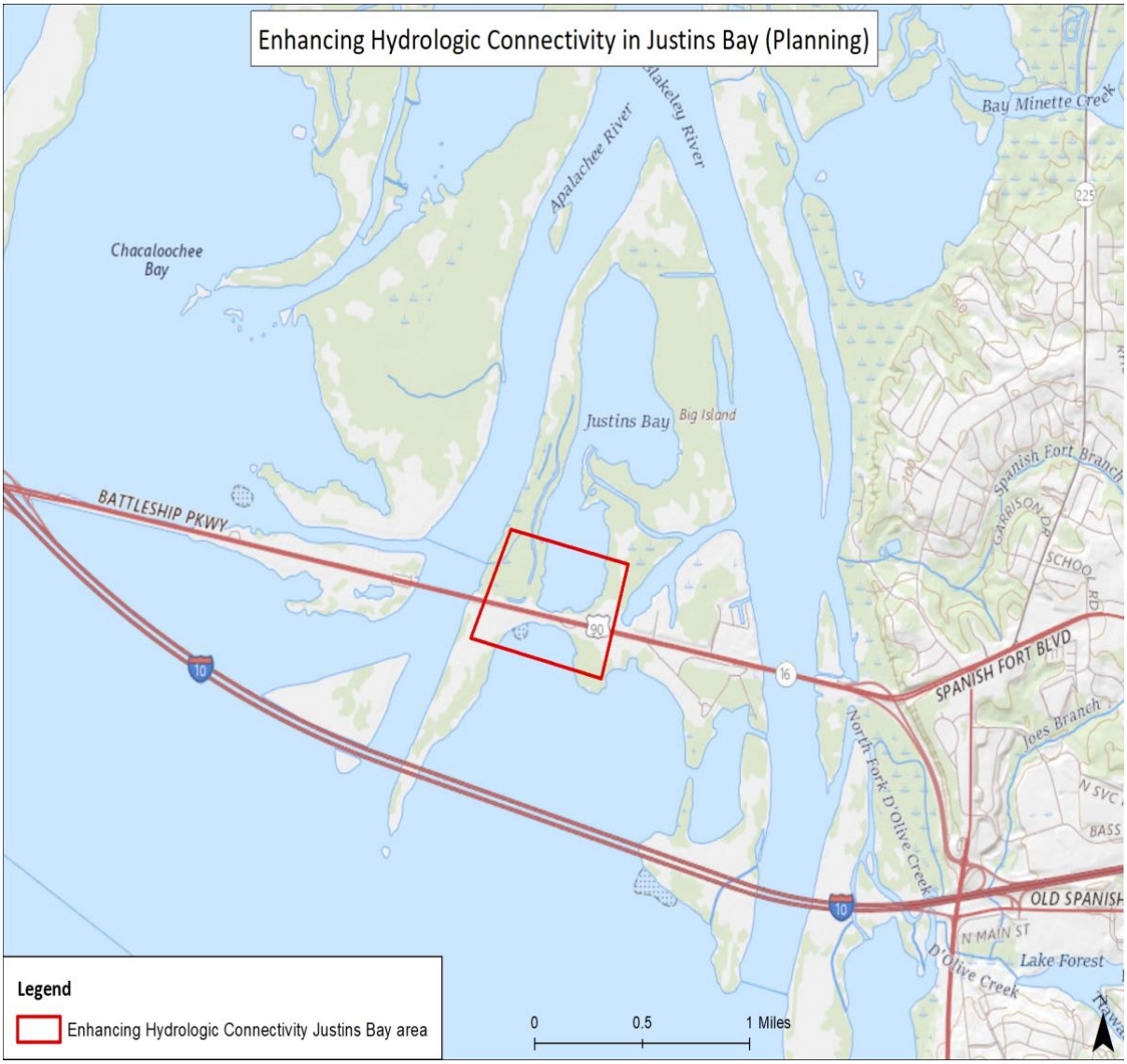

Figure 1 : Map of Project Area

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Alabama Department of Conservation and Natural Resources

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FPL Category: Cat1: Planning Only

Activity Type: Project

Program: N/A

Co-sponsoring Agency(ies):
AL

Is this a construction project?:
No

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(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.
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Project Duration (in years): 3

Goals

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Secondary Comprehensive Plan Objectives:
N/A

Secondary Comprehensive Plan Goals:
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PF Restoration Technique(s):
Restore hydrology and natural processes: Restore hydrologic connectivity

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):
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- Engagement, Inclusion, and Transparency: From the outset, ADCNR and the State of Alabama has been engaged with the public to prioritize coastal restoration. Within the MBNEP stakeholder engagement efforts for the CCMP and watershed management plan development, habitat enhancements including wetland restoration and hydrological connectivity were central tenets that also represent priority restoration activity.
- Science-based decision-making: Utilizing the best available science through the project's planning component, as well as relying on previous investments from the study of hydrological impacts in Mobile Bay, ADCNR would optimize design plans for construction to provide the most ecological benefit and reduce impacts to species and habitats in the area.

• Delivering results and measuring impacts: The proposed project would utilize work plans that would adhere to the site-specific milestones of the project. These would be documented in observational data management plans and tracked accordingly.

Environmental Benefits: It is well understood in the scientific literature that appropriate hydrological exchange is necessary for coastal marsh and estuarine wetland habitats to maintain ecological integrity and ecosystem health, as well as functioning to provide a variety of ecosystem service benefits to the system. The degree of hydrological connectivity can be a significant driver in the movement and flux of energy, organisms, and nutrients within a marsh landscape (Goecker, 2009; Roberts, 1997; Smith, 1988). A specific function of estuarine wetlands is to serve as nursery habitat for open water and estuarine dependent marine resources, to which hydrological connectivity determines the strength and integrity of that function (Swannack et al., 2019). Restoration of hydrological connectivity is critical to ensuring the long-term resilience of the coastal marsh complex, especially as freshwater flow changes and weather-related storm events increase in frequency and intensity.

Environmental Stressors: In the lower section of the Mobile-Tensaw Delta, a large causeway built in the mid to late 1920s has blocked a number of once-open bays from contact with Mobile Bay and the Gulf. By altering the seasonal variation and volume of flows, these hydrological modifications have altered the ecological function and biodiversity of one of North America's largest, most productive and diverse estuaries, on a local and system-wide basis (Valentine and Sklenar, 2006). Evidence has been found in similar situations around the world that show significant ecological changes can occur when natural hydrography is altered (Sabater and Tokner, 2009). In the Mobile Bay area, hydrological modification has affected nekton densities and assemblage structure (Rozas et al., 2013), reduced salt and fresh water exchange and altered circulation patterns (Martin and Valentine, 2012), resulting in changes in nutrient cycling (Goecker et al., 2009), frequency of occurrence and persistence of hypoxic events, and increased incidences of exotic and invasive plant species (Kauffman et al, 2018).

Total Cost: $1,000,000.

Timeline: 3 years

Partners: ADCNR will work and partner with the City of Spanish Fort, utility associations, and regulatory agencies to carry out project objectives.

This project aligns with the FPL3 Planning Framework priority approaches and techniques for Alabama by addressing the approach Restore hydrology and natural processes and technique Restore hydrologic connectivity. Additionally, the proposed project builds off of previous investments from the U.S. Fish and Wildlife Service, Department of the Interior through the Coastal Impact Assistance Program (CIAP).

Proposed Methods :

The proposed project will include the following primary activities:

Program Administration

Program administration will cover all activities associated with the project. ADCNR personnel and its contractors will provide administrative programmatic functions and/or support during the life of the grant. ADCNR (with contractual support) will undertake program management, coordination and monitoring activities to ensure compliance with all grant agreement terms and conditions, 2 C.F.R. Part 200, 31 C.F.R. Part 34, the RESTORE Council's Standard Terms and Conditions, applicable Special

Award Conditions, and applicable federal, state and local laws and regulations. ADCNR, with contractual support, will also manage the data associated with this project in accordance with the procedures outlined in the Observational Data Plan and the Data Management Plan.

Planning, Permitting and E&D

The planning component of the project will address any data gaps remaining from the 2015 study. A detailed gap analysis study will provide guidance for any critical data pieces needing to be collected before engineering and design take place. Data gap collection includes, but is not limited to, a fine resolution spatial delineation and extent of sediment contaminants in the restoration area; ecological impact studies; hydrodynamic modelling review; wave action modeling; water quality evaluation of the restoration area including potential changes to water temperature, salinity, and other parameters; and, coordination with utility owners to optimize engineering designs.

Engineering, design, and identification of permitting requirements of the identified solutions will utilize and apply standard engineering practices for similar projects, including certified and sealed plans. Engineering and design services will provide the alternatives to enhance hydrological connectivity between Justins Bay, north of the Causeway, and Mobile Bay, south of the Causeway. ADCNR will coordinate activities to determine design techniques for further development based on conditions specific to the project area and Best Available Science related to direct and indirect ecological benefits. ADCNR will identify one or more hydrological enhancement options to further develop 30% preliminary engineering and design through this project. Through this project, an opinion of probable cost will be developed to inform project construction, which is not included in the current scope of work for this project.

The preparation of preliminary engineering design plans must consider environmental permitting paths. Thus, this effort should include progressing the environmental permitting components to include determining the permits required, mitigation requirements (if applicable), and other environmental permitting considerations that may affect the engineering design and construction scheduling. The appropriate state/federal agencies will be engaged in order to understand permitting requirements for the respective design plans. Project design elements will be considered to maximize habitat quality as it relates to federally managed fish species. Further, design will take into consideration best management practices to ensure marine mammals and threatened or endangered species are not impacted. Additional activities may include environmental compliance testing of sediments, geotechnical investigations and other needs associated with site design.

Environmental Benefits:

Increased flushing and tidal communication will improve hydrology in Justins Bay (ADCNR, 2015). Hypoxia and anoxia occur naturally in estuarine systems, particularly in enclosed embayments such as Justin's Bay. With constructed openings that increase flushing and reduce retention time, episodic hypoxia and anoxia in these bays may be less frequent during warm seasons compared to the current condition (Kaufmann et al., 2018). Tidal exchange will tend to equalize salinities in the areas of influence north and south of the Causeway during periods of low river flow. The hydrodynamic modeling indicates that tidal exchange will be reduced at higher river discharge due to a general reduction of tidal forcing. During high flow conditions, freshwater dominates the delta and is likely to mask tidal exchange effects at Causeway openings. Salinity changes due to the project may not result in measurable differences in the distributions of the predominant flora and fauna of the study area, since these groups tend to have wide salinity tolerances.

Hydrologic connectivity established by constructed openings will provide corridors for a variety of aquatic fauna migrating between upper Mobile Bay and Justins Bay (Rozas et al., 2013). Access to the SAV and fringing tidal marshes north of the Causeway will potentially increase larval and juvenile

densities of important estuarine-dependent species at these locations, compared to the current condition (ADCNR, 2015). In general, the Causeway impedes faunal migration and has altered natural food web interactions in its immediate vicinity (Goecker et al., 2009). The constructed opening will restore natural function to the adjacent areas and increase wave action and mixing, which could have positive benefit to native submerged vegetation by introducing the incursion of wind-driven waves into oligohaline embayments north of the causeway that is currently over-populated with Eurasian milfoil (Martin and Valentine, 2012).

Metrics:

Metric Title: PRM010 : Research - # studies used to inform mgmt. : Planning, Research, Monitoring
Target: 1
Narrative: The number of studies completed whose findings are used to adapt management/ inform management. decisions.

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

Risk and Uncertainties:
As this is a planning project that will result in a better understanding of how to restore hydrological connectivity to Justins Bay, few risks are expected. Planning and engineering design based on scientific knowledge will support avoidance of risks and uncertainties and result in the appropriate design alternatives to provide an increase in ecological function in the area. A risk involved from a regulatory perspective will be time required for the permitting process and the potential risk the Project will not get permitted. ADCNR has experience implementing engineering, design and permitting of projects through various restoration funding and will work with the relevant permitting and resource agencies to identify issues which may impact permitting and adjust accordingly. Engineering and design specifications of restoration alternatives may be adjusted based on permitting conditions.

Monitoring and Adaptive Management:
There is no monitoring associated with this project. Project outcomes including engineering designs and gap analysis studies will be tracked through the project's observational data plan and data management plan.

Data Management:
Data reporting will occur every six months, and observational data reports will be developed and submitted in compliance with the grants reporting cycle as outlined in the RESTORE Council Financial Assistance Standard Terms and Conditions and Part IV, Section G of the Recipient Guideline. Following completion of all data collection, a final observational data report will be prepared and distributed. ADCNR will store, archive and provide project data and make them publicly available on DCNR's coastal restoration website: https://www.alabamacoastalrestoration.org/.

Collaboration:
Through the FPL collaborative planning process, Alabama has identified an opportunity for estuarine restoration. This work has foundations in previous planning and research work including the 2015 feasibility study already mentioned in addition to other impact studies over the last two decades that have addressed hydrologic connectivity on the lower Mobile-Tensaw Delta (Byrnes et al.,2013;

Valentine and Sklenar, 2006). The State of Alabama has invested significant funds into the development of comprehensive plans through both NFWF-GEBF as well as RESTORE (FPL 1) funding streams that contain specific restoration alternatives and priorities that identify the restoration and protection of coastal marsh ecosystems as well as the restoration of hydrological connections within Mobile Bay as priorities. The plans included grassroots engagement of coastal Alabama stakeholders to determine priorities as well as potential restoration actions and activities to address those priorities.

Public Engagement, Outreach, and Education:

The State of Alabama's prioritization of the Project is based on multiple public and stakeholder engagement activities. Throughout Alabama's restoration public engagement and planning efforts, stakeholders have consistently identified the restoration and protection of coastal habitats as a top priority. The following are examples of public engagement, outreach and education activities which were considered in the selection of this proposal:

Alabama Restoration Summit: ADCNR hosted the Alabama Restoration Summit in 2018. The public was invited to learn about restoration projects and programs and to provide input on current and future priorities for restoration. Based on the public input received, investing in coastal habitat restoration and protection continues to be a top priority of stakeholders.

Alabama Watershed Management Plans (NFWF-GEBF; RESTORE): Starting in 2013, the Mobile Bay National Estuary Program (MBNEP) has published several coastal watershed management plans (WMPs) that provide guidance for restoration. These plans depend upon public involvement and "stakeholders" who know the area, recognize its problems, and are invested in its health and resilience. Each plan includes a watershed description that educates communities about the geography, geology, biology, ecology, and hydrology of the drainage area's land and water. Although stakeholder engagement and education strategies are unique across WMPs, all of the plans have included stakeholder community meeting to gather feedback from the public

RESTORE Act Alabama State Expenditure Plan: ADCNR has solicited stakeholder input to support planning and development of the Alabama State Expenditure Plan (MSEP). Engagement with a wide range of stakeholders, including private citizens, non-governmental organizations, business owners, elected officials, and other community leaders, has informed the priorities for restoration.

Leveraging:

Funds: $500,000.00
Type: Bldg on Others
Status: Received
Source Type: Other Federal
Description: This project conducts a feasibility investigation relating to hydrologic restoration of certain areas of upper Mobile Bay/lower Mobile Tensaw Delta along the Mobile Bay Causeway (US 90/98) including the Justins Bay area.

Environmental Compliance:

Council approval of funding for this activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor does it commit the Council to a particular course of action affecting the environment. In the environmental compliance review, the Council would considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and could determine that no such circumstances apply. Accordingly, the Council could also determine that this activity is covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion (CE) for planning, research or design activities (Section 4(d)(3) of the Council's NEPA Procedures).

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Budget

Project Budget Narrative:
A total of $1,000,000 is being requested from FPL 3a to fund planning, gap analysis work, and develop 30% engineering and design for possible alternatives. An estimated 98% of this request is for project planning. Project planning will include, but is not limited to: project administration and management, including administrative programmatic functions, coordination, and sub-recipient / contractual support for project implementation; planning associated with identifying respective solutions, including gap analysis work, geo-tech, sediment sampling, etc.; engineering and design up to a 30% benchmark for identified solution(s); possible identification of permitting requirements associated with identified solution(s). An estimated 2% is being requested for data management activities. No funds are being requested for contingency, monitoring and adaptive management activities, or implementation.

Total FPL 3 Project/Program Budget Request:
$ 1,000,000.00

Estimated Percent Monitoring and Adaptive Management: 0 %
Estimated Percent Planning: 98 %
Estimated Percent Implementation: 0 %
Estimated Percent Project Management: 0 %
Estimated Percent Data Management: 2 %
Estimated Percent Contingency: 0 %

Is the Project Scalable?:
No

If yes, provide a short description regarding scalability.:
N/A

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

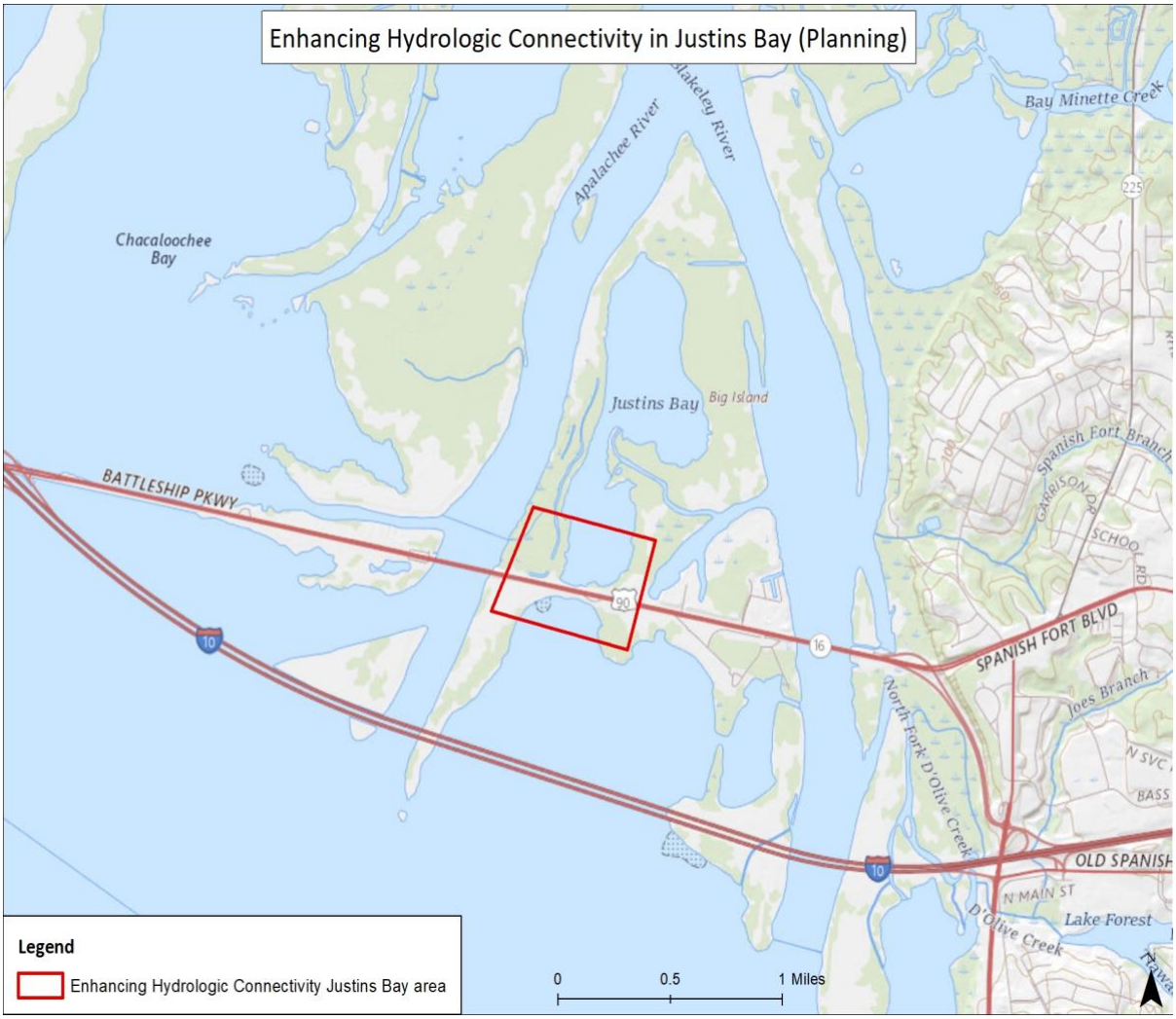

Figure 1 : Map of Project Area

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

Project/Program	Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)		
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?	Yes
Notes	

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?		Yes
Notes		
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 this planning only project. 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: "These 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)." If this activity is included in FPL 3b, the subsequent award document would require compliance with all applicable laws in the event that field sampling (such as sediment collection) is required in association with the proposed planning, engineering and design.	
11. Geospatial Compliance: Have the appropriate geospatial files and associated metadata been submitted along with a map of the proposed project/program area?		Yes
Notes		

FPL 3a BAS Review Summary – Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)

May, 2020

Overall the external Best Available Science reviews for the *Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)* proposal are positive. All reviewers agree that the proposal is based on science that uses peer-reviewed data supporting the current state of knowledge about ecological damage caused by limiting hydrologic connections in estuarine systems in general and Justins and Mobile Bay specifically. Reviewers recognize that the scientific basis of this planning project is justified using previous investments in applied analysis of stressors to this system and application of general ecological knowledge, both of which maximize the quality, objectivity, and integrity of information. Reviewers acknowledge the project has clearly defined goals, objectives and methods.

The objectives of this proposal were justified using peer- reviewed literature, along with publicly available data that served as historical reference while new data, recently collected from the 2015 Feasibility Study assessed hydrology along the causeway. The reviewers acknowledge the combination of general and local background information, based on both observational and modeling data cited in the proposal, will be useful for the evaluation of data gaps, planning and exploration of restoration alternatives. Reviewer 2 did acknowledge a desire for the proposal to better show how this project relates to other planning and restoration efforts within the same watershed and how this work could leverage additional data and planning initiatives.

Reviewers acknowledged this was a planning project with minimal short-term implementation risks. The primary risks stem from regulatory and permitting delays. They acknowledged the proposed planning will result in 30% engineering and design and this process will help identify risks and challenges for subsequent implementation of the designs. The proposal acknowledges the need for adaptive planning depending on potential regulatory and permitting delays. It was recognized the cited literature evaluated successes and failures of similar restoration projects and served as the basis of the proposed planning. There was consensus among reviewers that there would be no vulnerability to long-term risk for planning but they raised notice to the fact the project being designed will be exposed to risks and these risks were not addressed in the proposal. Relative to risks of the implementation phase planned by this project, Reviewer 1 raised the need for further discussion of how implementation of the designed project would be finalized if this planning phase is successful, however this is not required for planning only proposals.

The methods described for this planning and design project are unanimously supported by the reviewers as applicable to Mobile Bay. They feel appropriate justification was provided to support the sequencing of the project from identifying data gaps from the initial study, conducting impact studies and site condition modeling to analysis of engineering alternatives and ultimately initiation of the final design. The description is clear and the justification is tied to the lack of current information.

While there does not appear to be consensus in review of measures of success with two reviewers requesting further information, the concerns raised in those reviews relate to issues that will be addressed in later stages of the project. Reviewer 1 requests the identification of project milestones for measuring success of project implementation, but this is not required at the FPL proposal stage. Reviewer 2 notes there may be a time limit for how long the results of this study would remain useful for project implementation.

In summary, there is general recognition by the reviewers that this proposal outlines an incremental step toward restoring hydrologic flows in Upper Mobile Bay and the ecological benefits of this restoration are clearly supported by best available science. Reviewer 2 comments, “Careful comprehensive planning is considered vital to developing sustainable and successful watershed restoration projects, yet due to the nature of funding opportunities it is not always fully integrated into projects. This approach is laudable in that respect.”

Enhancing Hydrologic Connectivity in Justin's Bay
Response to BAS Reviewer Comments

Response to External BAS Reviewer Comments

1. Overall the external Best Available Science reviews for the *Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)* proposal are positive. All reviewers agree that the proposal is based on science that uses peer-reviewed data supporting the current state of knowledge about ecological damage caused by limiting hydrologic connections in estuarine systems in general and Justins and Mobile Bay specifically. Reviewers recognize that the scientific basis of this planning project is justified using previous investments in applied analysis of stressors to this system and application of general ecological knowledge, both of which maximize the quality, objectivity, and integrity of information. Reviewers acknowledge the project has clearly defined goals, objectives and methods.

Response:
The comment requires no response.

2. The objectives of this proposal were justified using peer- reviewed literature, along with publicly available data that served as historical reference while new data, recently collected from the 2015 Feasibility Study assessed hydrology along the causeway. The reviewers acknowledge the combination of general and local background information, based on both observational and modeling data cited in the proposal, will be useful for the evaluation of data gaps, planning and exploration of restoration alternatives. Reviewer 2 did acknowledge a desire for the proposal to better show how this project relates to other planning and restoration efforts within the same watershed and how this work could leverage additional data and planning initiatives.

Response:
Edits have been made to the proposal in the proposed methods section to explicitly recognize that the project would consider existing data and relevant watershed management plans. Robust planning is essential to the success of a large-scale project that would ultimately have a positive impact on water quality. Investing in planning now is cost-effective and increases the likelihood of success for future efforts to restore hydrologic connectivity in Justin's Bay. Edits have been made to the proposal to more explicitly discuss this linkage.

3. Reviewers acknowledged this was a planning project with minimal short-term implementation risks. The primary risks stem from regulatory and permitting delays. They acknowledged the proposed planning will result in 30% engineering and design and this process will help identify risks and challenges for subsequent implementation of the designs. The proposal acknowledges the need for adaptive planning depending on potential regulatory and permitting delays. It was recognized the cited literature evaluated successes and failures of similar restoration projects and served as the basis of the proposed planning. There was consensus among reviewers that there would be no vulnerability to long-term risk for planning but they raised notice to the fact the project being designed will be exposed to risks and these risks were not addressed in the proposal. Relative to risks of the implementation phase planned by this project, Reviewer 1 raised the need for further

discussion of how implementation of the designed project would be finalized if this planning phase is successful, however this is not required for planning only proposals.

The methods described for this planning and design project are unanimously supported by the reviewers as applicable to Mobile Bay. They feel appropriate justification was provided to support the sequencing of the project from identifying data gaps from the initial study, conducting impact studies and site condition modeling to analysis of engineering alternatives and ultimately initiation of the final design. The description is clear and the justification is tied to the lack of current information.

While there does not appear to be consensus in review of measures of success with two reviewers requesting further information, the concerns raised in those reviews relate to issues that will be addressed in later stages of the project. Reviewer 1 requests the identification of project milestones for measuring success of project implementation, but this is not required at the FPL proposal stage. Reviewer 2 notes there may be a time limit for how long the results of this study would remain useful for project implementation.

Response:
This project is a planning project, thus the milestones contemplated in the proposal are developed to track success associated with the completion of the scope of work proposed, which includes data collection, analysis and development of preliminary plans. Timing of milestones would be dependent upon the start date of the project and will be articulated in the grant application, should this project be funded. Future projects built on this initial planning project would very likely contain different milestones. No changes were made to the proposal. As this is a planning project, these are not currently material risks to the success of the project as currently proposed, thus edits were not incorporated into the risks section. However, these considerations such as climate change and traffic projections have been incorporated into the proposed methods section (see page 5) as additional elements to consider during the project design process.

4. In summary, there is general recognition by the reviewers that this proposal outlines an incremental step toward restoring hydrologic flows in Upper Mobile Bay and the ecological benefits of this restoration are clearly supported by best available science. Reviewer 2 comments, “Careful comprehensive planning is considered vital to developing sustainable and successful watershed restoration projects, yet due to the nature of funding opportunities it is not always fully integrated into projects. This approach is laudable in that respect.”

Response:
The comment requires no response.

Comments from RESTORE Council Staff

1. The sponsor is seeking funding approval (FPL Category 1) for this planning only project. 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: "These 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)." If this activity is included in

FPL 3b, the subsequent award document would require compliance with all applicable laws in the event that field sampling (such as sediment collection) is required in association with the proposed planning, engineering and design.

Response:

Edits have been made to the proposal to reflect this comment.

Response to Internal Panel Review Comments

Panelists agreed that comments from BAS reviews have been addressed and no further comments were received that required additional edits to the proposal.

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

Enhancing Hydrologic Connectivity in Justin's Bay (Planning)

Justification: Proposal does not explicitly make the connection between the necessity of planning and pre-assessment as an element of a successful project that will benefit water quality.

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

RESTORE Council FPL 3b Internal Best Available Science Panel Summary

Milestones: Identify project milestones.

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

Risks: Evaluation of risks such as climate change and increased traffic due to coastal development should be considered in the planning stage of the project.

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

Future steps: Discuss future work that would be expected to occur (outside of the proposed project) once preliminary design is completed.

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

Coordination: Reviewer is interested to see how this project builds on NEP work in the same watershed. The proposal references an older NEP document, but it would be important to know how the applicant could leverage NEP data/work.

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

Other: A panelist requests clarification as to how the fine scale evaluation of sediment will be conducted.

- Alabama response: Grab samples will likely be utilized. Additional details will be will be provided at the application stage if the proposal is funded.

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

RESTORE Council FPL 3b Internal Best Available Science Panel Summary

SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)
Location (If Applicable): Mobile Bay and Mobile-Tensaw Delta,Alabama
Council Member Bureau or Agency: Alabama Department of Conservation and Natural Resources
Type of Funding Requested: Planning

Reviewed by: Reviewer 1
Date of Review: May 4, 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 discusses the current state of knowledge about ecological damage caused by limiting hydrologic connections in estuarine systems in general and Justins and Mobile Bay specifically. The background should allow thorough evaluations of data gaps, restoration alternatives, and initial engineering as proposed by this project.	

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?	Choose an item.
Comments:	
I am unable to answer yes or no to this question; the proposal, aimed at Mobile Bay, directly 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 cited literature covers ecology, sedimentology, ecosystem restoration in general. The cited literature also relates to Mobile Bay and surround environments specifically. The combination of general and local background information will be usuful for the proposed restoration planning.	

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:	
Because the proposal is largely design based, the risks associated with successful completion stem from regulatory delays, which are recognized in the proposal. The proposal acknowledges the need for adaptive planning depending on potential regulatory and permitting delays.	

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:	
This proposal represents the continuation and refinement of a 2015 study by the ADCNR that compiled historical data and new field data, including collection and analysis of cores for sediment contamination, evaluations of ecosystem surveys, and hydrologic modeling. Although specific findings of the initial project are not included, the reported is cited with a link. I have perused that earlier report. In includes findings that appear to be complete and provide important preliminary data. The 2015 report suggests this proposed project will be successfully concluded through the preliminary engineering stages of the restoration as proposed.	

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 linkages between hydrologic connections in estuaries and ecosystem restorations are justified and specific linkages of this issue to Mobile Bay and Mobile-Tensaw delta are clear. The planning outlined in this document appears to be important considering preliminary findings (2015 report) of potential sediment contaminations and thus the exploration of multiple engineering methods to re-establish hydrologic connections is warrented.	

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:	

Risks and uncertainties of a planning project are limited; plans can always be created. Risks and uncertainties largely pertain to timely completion of the plans that could restrict moving to implementation phases. The proposal recognized these risks and uncertainties and provides plans to limit the risks.

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 ADCNR through a contract with an engineering firm has developed thorough background information provided in the 2015 report of how restricted hydrologic connections from the Upper Mobile Bay Causeway have impacted ecological systems in the bay. This report demonstrate experience, and a good outcome, from initial planning that should carry through this data gap planning and initiationof engineering project.	

Question B	
Does the project/program have clearly defined goals objectives?	Yes
Comments:	
Three clearly defined and explained goals include (1) identify data gaps remaining from previous study, (2) evaluate alternative plans to restore hydrologic connections, and (3) move the planning with preliminary engineering.	

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:

Each of the three goals has details about the way forward. Goal one – identify data gaps include refining sediment contaminant assesments, ecological impacts studies, hydrodynamic and wave modeling, water quality studies, and coordination with utilities on design. Goal two – compare developed certified and sealed engineering plans for similar projects to increase hydrologic connectivity. These evlauations may provide multiple alternatives. This planning step leads to Goal three – the initiataion of preliminary engineering and design for increased hydrologic connectivity.

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:

The identified stressor is the lack of hydrologic connectivity in upper Mobile Bay resulting from construction of the Causeway and filling wetlands. Environmental benefits should be multifold including increased tidal flushing and improved water quality, construction of corridors for aquatic migrating fauna, and improved conditions for subaquatic vegetation.

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)	Need more information

Comments:

Although the proposal states “plans … would adhere to site-specific milestones”, the proposal does not outline what those milestones would be, or when they would be reached. It is suggested they would be included and tracked in the data management plan and data reporting to occur every six months, but I could find no other details.

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)	No
Comments:	
This project as defined – largely planning – has no vulnerability to long term risks. However, the project that will be planned would have vulnerativility to some long term environmental risks, most notably climate change and related increased storm intensity and sea level rise. Land use change with increased coastal population may also present a risk (increased traffic on the causeway), which is also not discussed. However, such risk should be evaluated in the planning stage such as propoosed for this project.	

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:	
The primary short term risks involve inability to permit the project. These permits include construction and mitigation requirements that may delay the project as it is implemented. These risks are discussed in regards to timing of development of the plans. Additional risks stem from stakeholder involvement, largely of the communities surrounding the project. This risk is addressed through Alabama watershed management plans and the Mobile Bay National Estuary Program that has extensive outreach activities with stakeholders.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Yes
Comments:	
The most recent and pertinent information stems from the 2015 report developed by the ADCNR. Details of that report are used in the development of this proposal and planning for the projects	

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:	
Much of the cited literature evaluates successes and failures, as well as implementation of similar restoration projects to increase hydraulic connectivity in estuaries. These prior studies are the basis of the proposed planning project and will inform the project as it moves into engineering and construction phases	

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:	
No monitoring is needed for the planning of the project but the data management plan is well thought out. It lists reporting every six months with observational data reports. All data will be publicly available through the ADCNR website, which I found easy to navigate and thus likely to be useful.	

Please summarize any additional information needed below:

This proposal outlines an incremental step toward restoring hydrologic flows in the upper Mobile Bay that have been impacted since 1927 with construction of the Causeway. Benefits of restoring those flows are clearly described based on best available science. Impacts of the potential project are described and the planning stages and initiation of the engineering seem to be moving forward at a pace sufficient for evaluation and mitigation of the short term risks of the project. One aspect that is lacking from the proposal is a discussion of plans for possible implementation of the project. The proposed project will reach 30% engineering design and presumably the next step would be implementation of the project. Should planning go well, as indicated in the proposal, a short discussion would have been warranted of how the project would be finalized.

SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)
Location (If Applicable): Mobile Bay and Mobile-Tensaw Delta,Alabama
Council Member Bureau or Agency: Alabama Department of Conservation and Natural Resources
Type of Funding Requested: Planning

Reviewed by: Reviewer 2
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?	Need more information
Comments:	
There are several references to publicly available reporst and peer-reviewed literature relevant to the project within the proposed methods. There are none within the methods, but that may be oweing to the type of project being proposed, i.e. planning.	

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 few citations that are not directly related to the Gulf Coast region are relevant to the proposal and provide evidence of global context.	

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 citation style is not always consistent within the reference list, the citations are complete and were easy to verify. The citations within the text directly support the proposal objectives and are presented in an unbiased manner.	

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?)	No
Comments:	
The authors specifically state that since the primary objective of the proposal is planning there are not specific risks to address. They do discuss the uncertainty of the time to successfully completing the permitting process for any projects that result from this work.	

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?	Need more information
Comments:	
I am interested to see how this project relates to you builds on NEP work in the same watershed. The proposal references an older NEP document, but it would be important to know how they applicant could leverage NEP data/work. For example there is a 2017 scoping document for the Mobile-Tensaw-Apalachee Watershed which feeds Justins Bay. Furthermore, there are publically available publications that would support their approach (i.e. gap analysis and planning) for successful restoration (see response to Q1) – i.e. US EPA Watershed Planning https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=2922&object_id=2925	

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 applicant suggests the project goals/outcomes are anecessary step towards restoration work that will improve hydrology and ecosystem services between Justins Bay and the main body of Mobile Bay.	

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?	No
Comments:	

This isn't directly relevant to this project.

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 applicant's proposal builds on existing programs/project infrastructure at the ADCNR.	

Question B	
Does the project/program have clearly defined goals objectives?	Yes
Comments:	
The authors outline three goals that address restoration planning and preliminary restoration design for the watershed.	

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:	
Since the goal of the project is planning for future restorations the methods are listed as project administration and planning/permitting. The descriptions are clear and the justification is tied ot the lack of current information.	

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:	
The proposal clearely states the environmental benefit of restoring the hydrologic links from Justins Bay to the main body of the Mobile Bay, and I know that good planning and pre-assessment is necessary for all successful restoration projects. The applicants do not make that connection in the narrative.	

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)	Need more information
Comments:	
The metrics are addressed in the proposal and are tied to how many successful projects are implemented as a result of this planning project. What is lacking is the time scale/limit for implementation. How soon must they be implemented to be counted as part of the metrics? Statistical information is not discussed.	

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)	No
Comments:	
This is not explicitly addressed in the proposal	

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)	No
Comments:	
As a planning proposal the authors imply this is not relevant.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Need more information
Comments:	
Somewhat. As mentioned previously, there are many organizations already working in Mobile Bay, NEP, being one. The applicant may want to address how their efforts/project relate to ongoing restoration and research in the watershed. Furthermore, there are publically available publications that would support their approach (i.e. gap analysis and planning) for successful restoration (see response to Q1) – i.e. US EPA Watershed Planning https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=2922&object_id=2925	

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)	Need more information
Comments:	
This isn't really addressed	

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:	
The project plan mentions preliminary investigations to assess site conditions, permitting requirements, ect. These components will help the applicant address these requirements. As mentioned above no statistical information gathering is discussed, but may not be relevant.	

Please summarize any additional information needed below:

As a planning project several of the above review questions are difficult to answer, because the information does not seem directly applicable to the proposal.

Careful comprehensive planning is considered vital to developing sustainable and successful watershed restoration projects, yet due to the nature of funding opportunities it is not always fully integrated into projects. This approach is laudable in that respect.

SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)
Location (If Applicable): Mobile Bay and Mobile-Tensaw Delta,Alabama
Council Member Bureau or Agency: Alabama Department of Conservation and Natural Resources
Type of Funding Requested: Planning

Reviewed by: Reviewer 3
Date of Review: May 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 basis for the proposed work is grounded in a number of details studies of the Mobile Bay and the Justin Bay area in particular. These studies include but are not limited to: ADCNR 2015, Kauffman at al., 2018, Byrnes et al. 2013, and Rozas et al. 2013.	

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 majority of the references specific to the Gulf Coast and Mobile Bay, but other studies such as the Sabter and Tockner 2009 are relevant to the impacts of altered hydrological connectivity on ecosystems.	

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 cited is relevant and appropriately cited.	

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:	
Uncertainties and risk are addressed on page 6 and identified as minimal due to the planning nature of the proposed work.	

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 proposed work seeks to identify remaining data gaps in existing studies. These studies provide a thorough and specific evaluation of the environmental and hydrological conditions at Justins Bay. The proposed work also seeks to update the hydrological modeling to correct any science deficiencies that may current exist.	

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 proposed planning is justified based on both observational and modeling data.	

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:	
The proposed work seeks to develop E&D plans to the 30% level that will help identify risks and challenges to the full implementation of restoration plans.	

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:	
Prior experience is highlighted in the Collaboration and Public Engagement, Outreach, and Education sections on pages 6 and 7.	

Question B	
Does the project/program have clearly defined goals objectives?	Yes
Comments:	
The goals and objectives are presented on page 3 of the narrative.	

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 proposed methods (Program Administration and Planning, Permitting and E&D) are presented on pages 4 and 5.	

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:	
The environmental benefits are detailed on page 4.	

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 metrics that include both Research and a Restoration planning/design/ permitting metrics are presented on page 6.	

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)	No
Comments:	
This was not discussed, though the planning itself is not subject to such a risk. However, one element of the sediment studies is contamination and there is a discussion of the impact of changes in freshwater flows and storm frequency on the resilience of the ecosystems being evaluated for restoration.	

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:	
This is discussed on page 6.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Yes
Comments:	
The studies related to evaluating the program are all within the past 10 years and the data gap analysis and update to hydrodynamic modeling seek to bring the work fully up to date.	

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 use of past success and efforts is considered both in the referenced studies and the in the Collaboration and Outreach sections on pages 6 and 7.	

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:	
The project allocates 2% of the budget to data management. Adpative management is addressed in Metric 1 and the Monitoring and Adaptive Management section on page 6.	

Please summarize any additional information needed below:
Click here to enter text.