

Gulf Coast Ecosystem Restoration Council Funded Priorities List 3b

April 2021



Gulf Coast Ecosystem Restoration Council Members

U.S. Environmental Protection Agency (Chair)
Michael S. Regan
Administrator

State of Alabama
Kay Ivey
Governor

U.S. Department of Agriculture
Tom Vilsack
Secretary

State of Florida
Ron DeSantis
Governor

U.S. Department of the Army
John E. Whitley
Acting Secretary (as of 30 March 2021)

State of Louisiana
John Bel Edwards
Governor

U.S. Department of Commerce
Gina Raimondo
Secretary

State of Mississippi
Tate Reeves
Governor

U.S. Department of Homeland Security
Alejandro Mayorkas
Secretary

State of Texas
Greg Abbott
Governor

U.S. Department of the Interior
Deb Haaland
Secretary

Table of Contents

Executive Summary	4
Introduction	6
The RESTORE Act and Gulf Coast Ecosystem Restoration Council.....	6
RESTORE Act Priority Criteria	7
FPL Proposal Submission Guidelines and Review Process	11
FPL Categories	11
FPL 3b Development Process: Continued Collaboration	13
Overview of Proposed FPL 3b Activities.....	14
Advancing the Council’s Comprehensive Plan and 2019 Planning Framework.....	14
Regional Ecosystem-based Approach to Restoration.....	19
Coordinating, Collaborating, and Connecting Gulf Restoration Activities	20
Building on Partnerships and Leveraging	20
Coordination with Ongoing Council-led Restoration	21
Addressing Risk, Sustainability, and Resilience.....	23
FPL 3b Projects and Programs.....	24
Summary Activity Descriptions by Geographic Area.....	27
Coastal Texas, including Chenier Plain	27
Mississippi Sound, Mississippi.....	39
Mobile Bay and Mobile-Tensaw Delta, Alabama, Perdido Bay and River, Alabama-Florida	45
Coastal Florida.....	53
Gulfwide.....	64
Public Comment Process for FPL 3b.....	75
References.....	76

This Page Intentionally Blank

Executive Summary

This document describes the Gulf Coast Ecosystem Restoration Council (RESTORE Council or Council)'s funding decisions for twenty projects and programs (collectively referred to as activities). The funding is administered by the Council pursuant to the *Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2012* ([RESTORE Act](#)). The funding comes from the RESTORE Act allocation known as the Council-Selected Restoration Component, or "Bucket 2". The Council approves projects and programs for Bucket 2 funding as set forth in Funded Priorities Lists (FPLs). Prior to approval of this document, the Council approved three other FPLs.

The Council develops FPLs through collaboration among its members and with feedback from stakeholders across the Gulf. The Council was initially planning on developing FPL 3 as a single action, consisting of a list of restoration activities, including projects and programs, addressing ecosystem needs across the Gulf coast. As a result of the collaborative process, the Council decided to develop FPL 3 in two phases. On February 12, 2020, the Council approved the first phase, referred to as [FPL 3a](#). The Council has now finalized the second phase, FPL 3b.

In FPL 3b, the Council has approved \$140,456,250 for water quality improvement, habitat conservation and restoration, and other ecosystem projects and programs (collectively referred to as activities) across the Gulf coast. In addition, the Council is budgeting \$161,543,750 to implement priority activities in the future. Among other potential benefits, FPL 3b will:

- Establish large-scale programs to address water quality and quantity, habitat acquisition and conservation, coastal resilience, and other ecosystem restoration needs in the Gulf;
- Continue funding to enhance the environmental vitality of the area's natural resources while also providing environmental job training for young adults across the Gulf, including youth from Federally recognized tribes;
- Support ecosystem restoration in important ecoregions and watersheds, including the Texas Chenier Plain, Mississippi Sound in Mississippi, the Apalachicola watershed in Florida, and the Perdido River and Bay Watershed shared by Alabama and Florida;
- Continue funding for private land conservation and ecological restoration on agricultural lands across the Gulf; and
- Support scientific efforts to help build the knowledge needed to advance Gulf restoration.

Many of these activities will continue to strategically leverage investments with other restoration efforts, including building upon successes of past FPL activities. The proposals for these projects and programs, along with the best available science (BAS) reviews of the proposals, may be found at www.restorethegulf.gov. FPL 3b adheres to the FPL development process committed to by the Council, including the application of best available science, public engagement and transparency, and the [2019 Planning Framework](#).

This Page Intentionally Blank

Introduction

This document describes the Gulf Coast Ecosystem Restoration Council (RESTORE Council or Council)'s funding decisions for twenty activities, including both projects and programs. The funding is administered by the Council pursuant to the *Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies Act of the Gulf Coast States of 2012* ([RESTORE Act](#)). The funding comes from the RESTORE Act allocation known as the Council-Selected Restoration Component, or "Bucket 2." The Council approves projects and programs for Bucket 2 funding as set forth in Funded Priorities Lists (FPLs). Prior to approval of this document, the Council had approved three other FPLs. As a result of the collaborative process, the Council decided to develop FPL 3 in two phases. On February 12, 2020, the Council approved the first phase, referred to as [FPL 3a](#). The Council has now approved the second phase, FPL 3b. The following provides background on the RESTORE Act and Bucket 2, along with an overview of the FPL3b projects.

The RESTORE Act and Gulf Coast Ecosystem Restoration Council

The Gulf Coast environment was significantly damaged by the 2010 *Deepwater Horizon* oil spill. In an effort to advance environmental and economic recovery from the spill, Congress passed the [RESTORE Act](#) in 2012. The RESTORE Act established the Gulf Coast Ecosystem Restoration Council. Members of the Council include the Governors of the states of Alabama, Florida, Louisiana, Mississippi, and Texas; the Secretaries of the U.S. Departments of the Interior, the Army, Commerce, Agriculture, and Homeland Security; and the Administrator of the U.S. Environmental Protection Agency (EPA). The Administrator of the EPA currently serves as the Council Chairperson.

Pursuant to the RESTORE Act, the Council is responsible for administering a portion of the funds associated with settlement of civil penalties against parties responsible for the *Deepwater Horizon* oil spill. Specifically, the Council is responsible for administering two funding sources: (1) the Council-Selected Restoration Component, or "Bucket 2", and (2) the Spill Impact Component, or "Bucket 3". Bucket 2 receives 30% of the funds allocated under the RESTORE Act. [Figure 1](#) shows the funding allocations and amounts under the RESTORE Act and associated settlements of civil penalties. In addition, the Direct Component, also known as "Bucket 1", provides states with funds to conduct restoration and other activities, and is administered by the U.S. Department of the Treasury.



Figure 1. Allocation of the Gulf Coast Restoration Trust Fund based on settlements with BP, Transocean and Anadarko; RESTORE Council oversight components are highlighted in green.

The Council's Bucket 2 funding decisions are guided by criteria set forth in the RESTORE Act, the Council's *2016 Comprehensive Plan Update: Restoring the Gulf Coast's Ecosystem and Economy* ([2016 Comprehensive Plan Update](#)), and other policies, including the Council's [2019 Planning Framework](#). Pursuant to the RESTORE Act, Council approval of Bucket 2 funding requires an affirmative vote from at least three state members and the Council Chair, who casts the vote on behalf of all of the federal members. The following is a brief overview of the Bucket 2 criteria and policies, with links to additional information.

RESTORE Act Priority Criteria

In selecting projects and programs under Bucket 2, the [RESTORE Act](#) requires that the Council give the highest priority to projects and programs (collectively referred to as activities) that address one or more of the following criteria:

1. **Projects that are projected to make the greatest contribution to restoring and protecting** the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region, without regard to geographic location within the Gulf Coast region.
2. **Large-scale projects and programs** that are projected to substantially contribute to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast ecosystem.

3. **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.
4. **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.

As required by the RESTORE Act, the Council released the *2013 Initial Comprehensive Plan: Restoring the Gulf Coast's Ecosystem & Economy* ([2013 Initial Comprehensive Plan](#)). The Council's strategy for achieving a healthy Gulf is founded on the five Comprehensive Plan goals that address habitat, water quality and quantity, coastal and marine resources, community resilience, and the Gulf economy. Additionally, the Council committed to an overarching framework for an integrated and coordinated approach to region-wide Gulf Coast restoration and to help guide the collective actions at the local, state, tribal, and federal levels. The Council's goals are:

1. *Restore and Conserve Habitat*
2. *Restore Water Quality and Quantity*
3. *Replenish and Protect Living Coastal and Marine Resources*
4. *Enhance Community Resilience*
5. *Restore and Revitalize the Gulf Economy*

The fifth goal focuses on reviving and supporting a sustainable Gulf economy. While a healthy ecosystem does benefit the economy, this goal does not apply directly to Bucket 2. This goal directly pertains to expenditures by the Gulf Coast States authorized in the RESTORE Act under the Direct Component (Bucket 1, administered by the Department of the Treasury) and the Spill Impact Component (Bucket 3, administered by the Council), and ensures that these investments can be considered in the context of comprehensive restoration.

Consistent with these goals, the Council's objectives are:

1. *Restore, Enhance, and Protect Habitats*
2. *Restore, Improve, and Protect Water Resources*
3. *Protect and Restore Living Coastal and Marine Resources*
4. *Restore and Enhance Natural Processes and Shorelines*
5. *Promote Community Resilience*
6. *Promote Natural Resource Stewardship and Environmental Education*
7. *Improve Science-Based Decision-Making Processes*

The Council approves Bucket 2 funding for projects and programs through the development of Funded Priorities Lists (FPLs). Projects and programs funded through this component must be in furtherance of the goals and objectives of the Comprehensive Plan and meet at least one of the above-mentioned criteria identified in the RESTORE Act.

The Council approved the Initial FPL in December 2015 ([2015 Initial FPL](#)) which provided funding for restoration and conservation activities that focus on habitat and water quality based on a watershed or estuary approach, as well as several Gulfwide projects. These activities are intended to provide near-term “on-the-ground” ecological results while also building a planning and science foundation for future success of projects.

A review of the process used to develop the 2015 Initial FPL was conducted that included input from both Council members and the public. Following completion of this review, the Council developed the *2016 Comprehensive Plan Update: Restoring the Gulf Coast’s Ecosystem & Economy* ([2016 Comprehensive Plan Update](#)). The 2016 Comprehensive Plan Update further emphasized the Council’s commitments to collaborate among members, potential funding partners, and the public; increase public engagement and transparency; and refine its best available science (BAS) practices.

To advance these commitments, the Council approved a second FPL in January 2018, referred to as the *2017 Commitment and Planning Support FPL* ([2017 CPS FPL](#)). Rather than funding specific restoration projects or programs, the 2017 CPS FPL dedicates funds over a five-year period to help Council members meet 2016 Comprehensive Plan Update commitments and identify potential areas for future FPL proposal development.

Council members have used 2017 CPS FPL funds to pay for travel to meetings and to develop and implement processes for working with potential funding partners (including other Deepwater Horizon funding sources), stakeholders, and the public to generate project ideas. Council members held meetings throughout the Gulf to discuss ecosystem restoration concepts and potential techniques to address environmental challenges and stressors throughout the Gulf. In this collaboration process, the Council determined that additional strategic guidance could help ensure that Bucket 2 funds are used as effectively as possible. The Council developed its [2019 Planning Framework](#) to provide this guidance. The 2019 Planning Framework lists priority restoration approaches and techniques ([Figure 2](#)), their relationship to the Comprehensive Plan goals and objectives, and associated geographic areas. The purpose of this document is to provide the public and potential funding partners with an indication of the kinds of projects and programs that are anticipated to be developed for FPL 3 funding consideration. As part of the process of developing future FPLs, the 2019 Planning Framework will be reviewed and revised as needed to incorporate outcomes and lessons learned from previously implemented projects, scientific and technical developments, changing policy, public input, and other planning considerations.

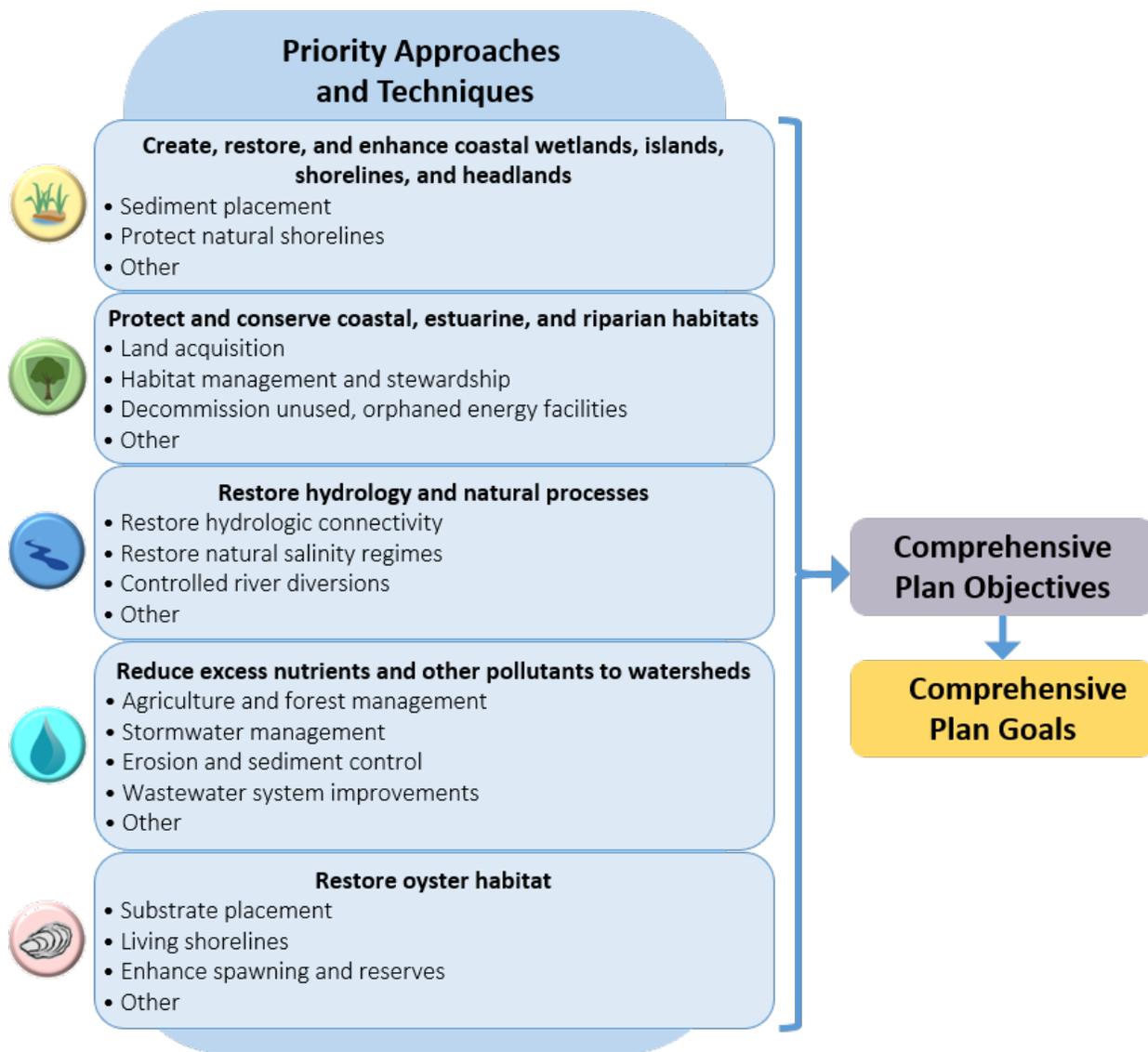


Figure 2. The 2019 Planning Framework priority approaches and techniques can be applied to support the Comprehensive Plan objectives and goals.

It was also through this collaborative process that the Council recognized that developing FPL 3 in two phases would enable the Council to fund projects requiring near-term attention and take advantage of important partnership opportunities to advance large-scale ecosystem restoration. The first phase, [FPL 3a](#), was approved by the Council in February 2020 and included two projects, one in Alabama and the other in Louisiana. In the second phase, FPL 3b, the Council has approved twenty restoration activities, including projects and programs that address additional ecosystem needs across the Gulf.

FPL Proposal Submission Guidelines and Review Process

In 2019, the Council developed updated guidance for its members on the content and review process for Bucket 2 funding proposals. This updated guidance is called the *FPL 3 Proposal Submission Guidelines and Review Process* ([2019 Submission Guidelines](#)). The primary purpose of the 2019 Submission Guidelines is to help Council members develop effective proposals for potential funding in FPL 3. Council members are the only entities eligible to submit proposals for potential funding under Bucket 2. Federally recognized tribes may submit proposals via a federal Council member sponsor. This guidance document is divided into three sections:

- **Section 1 - Proposal Evaluation Criteria and Related Information:** This section discusses the statutory criteria that FPL 3 proposals must address to be considered for funding under Bucket 2, along with other legal requirements pertaining to BAS and environmental compliance. This section also discusses the FPL categories and [2019 Planning Framework](#) that will help guide the selection of projects and programs for inclusion in FPL 3.
- **Section 2 - Guidance for FPL Proposal Content:** This section describes the information to be included in FPL 3 proposals.
- **Section 3 - FPL Proposal Review Process and Public Engagement:** This section outlines how the Council will review and consider FPL 3 proposals to ensure compliance with the RESTORE Act, use of the best available science (BAS),¹ and consistency with the goals, objectives, and commitments set forth in the Comprehensive Plan. It also describes the opportunities for the public to engage in the FPL 3 development process.

FPL Categories

FPLs include activities in two categories. Category 1 activities are approved for Bucket 2 funding. Such approval requires a Council vote as set forth in the [RESTORE Act](#). To be approved in Category 1, a project or program must have documentation demonstrating that all applicable environmental laws have been addressed. For example, a construction project would need documentation demonstrating compliance with the National Environmental Policy Act and other applicable laws.

Category 2 activities are Council priorities for potential future funding, but are not approved for funding. These are projects and/or programs that are not yet in a position to be approved by the Council, but which the Council considers to warrant potential future funding.

¹ The RESTORE Act defines best available science as science that “(A) maximizes the quality, objectivity, and integrity of information, including statistical information; (B) uses peer-reviewed and publicly available data; and (C) clearly documents and communicates risks and uncertainties in the scientific basis for such projects” (RESTORE ACT 2012).

The Council remains committed to efficient and transparent environmental compliance to help deliver timely restoration results. After publication of draft FPL 3b, Council members continued to collaborate in an effort to complete the environmental compliance documentation required to move some of the implementation components listed in draft FPL 3b as Category 2 into Category 1 status prior to a Council vote on the final FPL 3b. The Council was able to complete this work for two FPL 3b programs: The Florida Strategic Gulf Coast Land Acquisition Program and the Texas Land Acquisition Program for Coastal Conservation. The [“FPL 3b Projects and Programs”](#) section of this document includes a link to the environmental compliance documentation on the [Council’s website](#) for all approved projects and programs.

With approval of FPL 3b by the Council, funding is budgeted for potential use on the Category 2 activities, but the Council is not committed to such activities. As appropriate, the Council will review the activities in Category 2 to determine whether to: (1) move an activity to Category 1 and approve it for funding, (2) remove it from Category 2 and any further consideration, or (3) continue to include it in Category 2. In these reviews, the Council can consider feasibility and environmental compliance, as well as scientific, technical, policy, and/or other related issues. A Council vote and FPL amendment are required to move an activity from Category 2 to Category 1, or to remove an activity from Category 2 and any further consideration.

The combined total for funding approved in Category 1 and budgeted for potential use on Category 2 activities will not exceed the total amount of Bucket 2 funding in the Gulf Coast Restoration Trust Fund at the time of a Council vote to approve FPL 3b. After initial approval of FPL 3b, the Council will provide a minimum of 15 days additional public notice before voting on whether to approve funding for an activity in Category 2, thereby moving it to Category 1. These notifications will be provided to Council “eBlast” (automatic email update) subscribers, referred to in the [“Public Comment Process for FPL 3b”](#) section of this document. These notifications also will be posted to the [Council’s website](#).

FPL 3b contains a number of large-scale programs² across the Gulf. Some of these programs have planning funds approved in Category 1, with associated implementation components budgeted in Category 2, pending future Council vote and approval. The planning funds will be used to identify specific projects that advance the program goals and objectives. The planning funds will also be used to develop the projects through the engineering, design, and permitting phase. Implementation funds for such projects will only be available after the Council has reviewed the project (including the associated environmental compliance documentation), solicited additional public input, and voted to move the project from Category 2 to Category 1.

² The [2016 Comprehensive Plan Update](#) provided definitions of the terms “project” and “program”:

Project: A single ecosystem restoration and/or conservation activity that cannot be separated into stand-alone sub-activities.

Program: A suite of intrinsically-linked restoration and/or conservation activities that must be implemented together in order to achieve the desired outcome. A program should generally be covered by one unified Council environmental compliance review and should have a common set of performance measures to effectively assess and measure outcomes.

Those who are interested in these large-scale programs are encouraged to stay involved during the subsequent stages, when specific implementation projects will be reviewed by the Council.

FPL 3b Development Process: Continued Collaboration

Upon approving [FPL 3a](#) in February 2020, the Council continued its focus on identifying projects and programs to address other Gulf Coast ecosystem needs through FPL 3b funding. Using [2017 CPS FPL](#) resources, Council members (members) continued to collaborate among themselves and with stakeholders to identify and shape project and program concepts for potential inclusion in FPL 3b. In the early stages of collaboration, members identified and discussed potential priorities, which ranged from broad programmatic goals to specific project concepts. Throughout this process, project and program concepts were reviewed and discussed by all members, further refined, and in some cases, dropped from further consideration based on feedback and other factors (e.g., availability of alternative funding sources). These discussions helped members further shape their respective project and program concepts as they developed FPL 3b proposals.

To manage resources and time, the Council chose to limit each member to a submission limit of no more than five proposals for FPL 3b funding (as was done in the [2015 Initial FPL](#)). Proposals submitted by a federal member on behalf of a Federally recognized tribe did not count toward this limit. Members could submit fewer than five proposals or none at all during the submission window from March 9 to April 24, 2020. The Council then reviewed all proposals for compliance with the [RESTORE Act](#), consistency with the Comprehensive Plan and [2019 Planning Framework](#), and compliance with all applicable environmental laws.

Additionally, the Council refined the process that was used in the 2015 Initial FPL to review all proposals for the use of the best available science (BAS). The RESTORE Act requires the Council to “undertake projects and programs, using the best available science that would restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, coastal wetlands, and economy of the Gulf Coast.” To meet the intent of the RESTORE Act, and to support the Council’s [2016 Comprehensive Plan Update](#) commitment to science-based decision-making, all FPL 3b proposals underwent a BAS review process that included three anonymous external science reviews (including reviews by experts from within and outside the Gulf Coast region) and an Internal BAS Review Panel. The purpose of this internal panel was to use Council member-agency technical expertise to consider external reviews, identify ways to further strengthen the scientific basis of each proposal and, as applicable, identify potential synergies between proposals not identified prior to their submission.

After all proposal reviews were completed, members responded to review comments pertaining to their respective proposals. This included revising their proposals, as warranted. These responses and revised proposals were resubmitted to the Council by July 17, 2020. The revised proposals, as well as the proposal “packages” containing the reviews, responses, Internal BAS Review Panel discussions, and original proposals, were then made available to the public on the [Council’s website](#).

At the time the revised proposals were re-submitted, the combined cost of the proposals exceeded the funding available for FPL 3b. As the collaborative process among the members continued, some proposals were modified (e.g., scaled down), while others were eliminated from further consideration. The remaining proposals were then compiled into FPL 3b. FPL 3b is designed to address ecosystem needs across the Gulf while also maintaining consistency with the 2019 Planning Framework and considering the FPL 3a investments. To approve an FPL, the RESTORE Act requires the affirmative vote of three of the five state members and the Council Chair. Consistent with its commitment to collaboration, the Council finalized an FPL 3b funding allocation that is supported by all members.

Overview of Proposed FPL 3b Activities

Advancing the Council's Comprehensive Plan and 2019 Planning Framework

FPL 3b describes projects and programs (collectively referred to as activities) to address ecosystem needs across the Gulf. The RESTORE Council (Council) has approved \$140,456,250 for Category 1 activities across the Gulf coast. In addition, the Council has budgeted \$161,543,750 for Category 2 activities. The activities in FPL 3b are consistent with the [RESTORE Act](#) Priority Criteria, the Council's [2016 Comprehensive Plan Update](#) goals and objectives, and also utilize priority approaches and techniques described in the [2019 Planning Framework](#). Collectively, these activities continue to advance the Council's vision of "A *healthy and productive Gulf ecosystem achieved through collaboration on strategic restoration projects and programs*" ([2016 Comprehensive Plan Update](#), p. 18).

The 2016 Comprehensive Plan Update describes four goals and seven objectives that pertain to Bucket 2, as shown in [Table 1](#). Each activity in FPL 3b is designed to provide primary benefits to a particular Comprehensive Plan goal and objective — designated as its primary goal and primary objective, respectively. Activity descriptions may also identify secondary Comprehensive Plan goals and objectives. To achieve its stated goals and objectives, each of the FPL 3b activities utilizes priority approaches and techniques. These priority approaches and techniques are broad categories of restoration identified and described in the 2019 Planning Framework. Further, the 2019 Planning Framework provides an overview of the likely primary and secondary goal(s) and objective(s) that each technique may be employed to support.

Table 1. Comprehensive Plan goals and objectives are supported using Planning Framework priority approaches employed by FPL 3b activities across geographic areas. For each activity, the priority approaches that will be employed are shown as icons, and are placed to indicate corresponding objectives (top) and goals (bottom). Primary objectives are distinguished by dark-shaded boxes.

Comprehensive Plan Objectives		Restore, enhance, and protect habitats	Restore and enhance natural processes and shorelines	Restore, improve, and protect water resources	Promote community resilience	Natural resource stewardship and env. education	Improve science-based decision-making processes
Project/Program							
Coastal TX	Shoreline Protection through Living Shorelines						
	Texas Coastal Water Quality Program						
	Texas Land Acquisition Program for Coastal Conservation						
	Wind-Tidal Flat Restoration Pilot project						
	Chenier Plain Ecosystem Restoration Program						
MS Sound	Coastal Nearshore Habitat Restoration and Development Program						
	Water Quality Improvement Program for Coastal Mississippi Waters						
Mobile and Perdido Bays	Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)						
	Coastal Alabama Regional Water Quality Program						
	Develop Ecological Flow Decision-Support for Mobile River and Perdido River Basins						
	Perdido Water Quality Improvements and Restoration Assessment Program						
Comprehensive Plan Goals		Restore and conserve habitat		Restore water quality and quantity	Enhance community resilience	Varies	
Create, restore, and enhance coastal wetlands, islands, shorelines, and headlands		Protect and conserve coastal, estuarine, and riparian habitats		Restore hydrology and natural processes	Reduce excess nutrients/pollutants to watersheds	Restore oyster habitat	

Comprehensive Plan Objectives		Restore, enhance, and protect habitats	Restore and enhance natural processes and shorelines	Restore, improve, and protect water resources	Promote community resilience	Natural resource stewardship and env. education	Improve science-based decision-making processes
Project/Program							
Coastal FL	The Apalachicola Regional Restoration Initiative: Strategies 2 & 3	  		  			
	Florida Gulf Coast Resiliency Program				 		
	Florida Gulf Coast Tributaries Hydrologic Restoration Program			 			
	Florida Water Quality Improvement Program			 			
	Florida Strategic Gulf Coast Land Acquisition Program						
Gulfwide	Gulf Coast Conservation Reserve Program						
	Enhancing Gulf Waters through Forested Watershed Restoration	 		 			
	Gulf of Mexico Coast Conservation Corps (GulfCorps) Program	  				  	
	Tribal Youth Coastal Restoration Program						
Comprehensive Plan Goals		Restore and conserve habitat		Restore water quality and quantity	Enhance community resilience	Varies	
 Create, restore, and enhance coastal wetlands, islands, shorelines, and headlands		 Protect and conserve coastal, estuarine, and riparian habitats		 Restore hydrology and natural processes	 Reduce excess nutrients/pollutants to watersheds	 Restore oyster habitat	

In the “[FPL 3b Projects and Programs](#)” section of this document, supporting figures are included in each FPL 3b summary activity description to show how the 2019 Planning Framework priority approaches and techniques will be employed to support Comprehensive Plan goals and objectives for each FPL 3b activity ([Figure 3](#)).

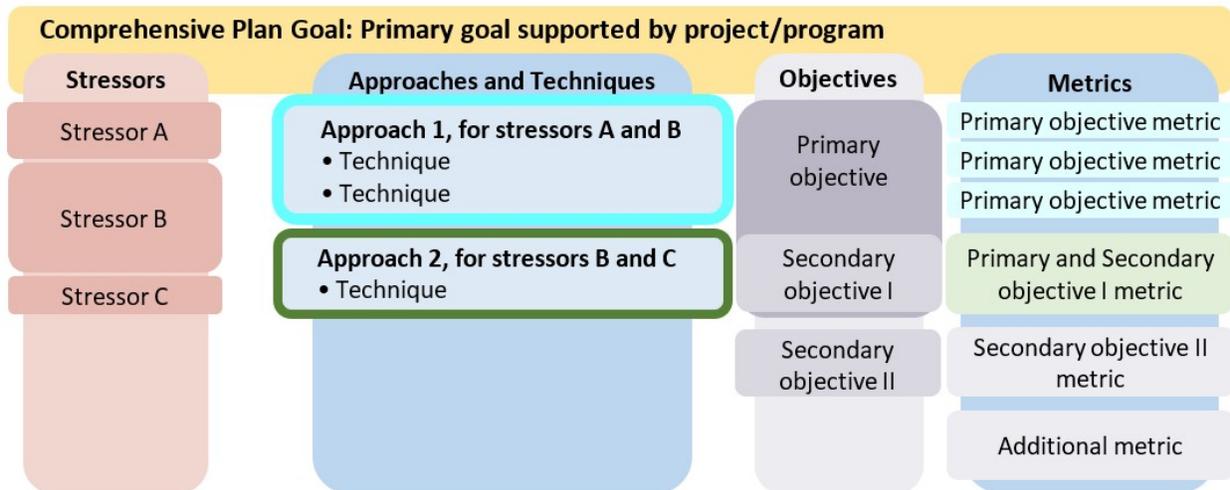


Figure 3. This figure provides a generalized example of an FPL 3b activity supporting figure. The figure shows how the Comprehensive Plan goals and objectives of an activity will be supported and tracked. The primary goal supported by the activity is shown at the top; any secondary goals are not depicted. All other information is organized into rows to provide a simplified depiction of how each column relates to the 2019 Planning Framework approaches. Each approach box (second column) lists the corresponding techniques that will be implemented, and aligns with the stressors it will be used to address (first column), the objective(s) it will support (third column), and metrics that may be used to track its benefits to the supported objective(s) (fourth column). For activities with one or more secondary objectives, an approach may support both the primary objective (uppermost row) and a secondary objective, as shown for ‘Approach 2’. Objectives that are placed below the row(s) aligned to approaches, as shown for ‘Secondary objective II’, are supported by all of the approaches to be implemented by the activity. Additional metrics may be proposed which do not align with selected approaches and/or objectives (bottom row). Note that techniques are not meant to align on particular rows, and that stressors only align with approaches.

The activities in FPL 3b also build upon investments made in [FPL 3a](#), as well as the [2015 Initial FPL](#). In the 2015 Initial FPL, the Council focused on activities that primarily addressed the Comprehensive Plan goals *Restore and Conserve Habitat* and *Restore Water Quality*. In FPL 3a, the Council included two restoration projects that primarily address the goal *Restore and Conserve Habitat*. In FPL 3b, the Council will continue to invest in these goals, as well as the *Enhance Community Resilience* goal. Combined, FPL 3a and FPL 3b activities will address three of the five Comprehensive Plan goals, and six of the seven Comprehensive Plan objectives throughout the Gulf ([Figure 4](#)).

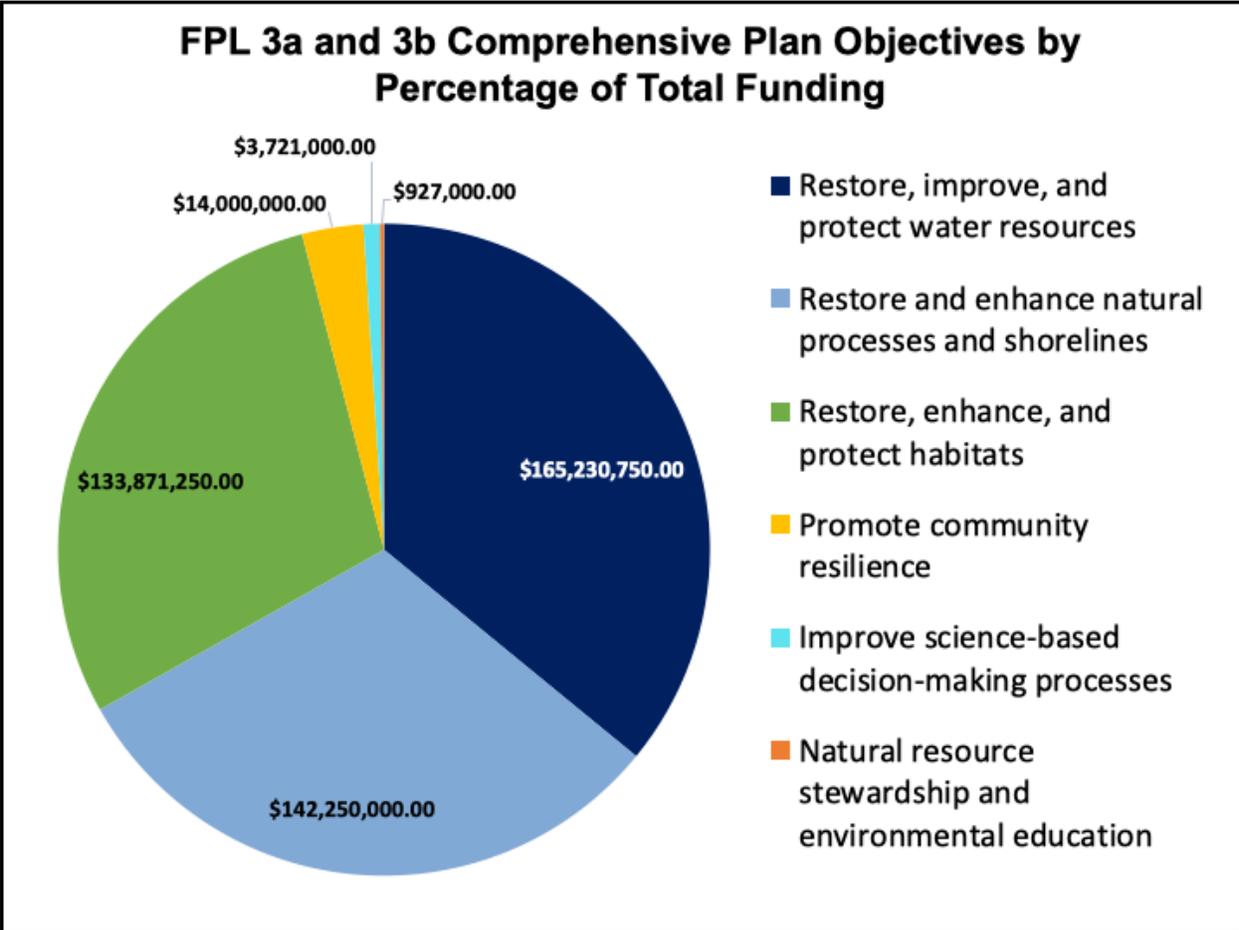


Figure 4. Percentage of total FPL 3a and total FPL 3b funding by project/program primary Comprehensive Plan objective. Note: While only the primary objectives for FPL 3a and FPL 3b activities are summarized here, projects/programs may address multiple Comprehensive Plan goals and objectives

The fourth Comprehensive Plan goal and the last Comprehensive Plan objective, *Replenish and Protect Living Coastal and Marine Resources* and *Protect and Restore Living Coastal and Marine Resources*, respectively, will also be supported by FPL 3b activities, although they will not be addressed directly. For example, by addressing the degradation of shorelines and other tidally influenced habitats through the conservation of important habitats and coastal processes, the Council may also provide indirect benefits to living coastal and marine resources that rely on these habitats for food, shelter, and breeding areas ([Chesney et al. 2000](#); [Minello et al. 2003](#); [O'Connell et al. 2005](#)).

Regional Ecosystem-based Approach to Restoration

FPL 3b reflects lessons learned from the [2015 Initial FPL](#) process and commitments made in the [2016 Comprehensive Plan Update](#), most notably, enhanced collaboration and strategic planning to achieve large-scale ecosystem benefits. The 2015 Initial FPL contains activities described as “foundational” in that they will contribute to comprehensive Gulf restoration by complementing other projects in order to produce environmental benefits greater than the sum of the individual activities. This approach to identifying priority restoration activities acknowledges the interconnected nature of coastal and marine ecosystems. It also recognizes the importance of addressing system-wide stressors that reduce ecosystem health. FPL 3b advances this concept by investing in programmatic approaches to address the ecosystem needs in certain geographic areas.

Ecosystems are subjected to both natural and human alterations that act together as “stressors” and affect natural ecosystem structure and function. The more ecosystems are stressed, the less resilient they may be to even larger, global challenges such as climate change ([Timpane-Padgham et al. 2017](#)). The programs included in FPL 3b are intended to address large-scale ecosystem stressors that result in water quality impairment, coastal habitat loss and degradation, and coastal resilience challenges.

In the 2015 Initial FPL, the Council focused in part on key watersheds and estuaries to concentrate its resources for the greatest ecosystem benefit. The Council further committed to using a watershed/estuary-based approach to restoration in the 2016 Comprehensive Plan Update. Geographic areas described in the [2019 Planning Framework](#) are a step toward identifying priority watersheds or estuaries for investment in order to meet Comprehensive Plan goals and objectives.

These geographic areas vary in size from specific watersheds to coverage of an entire coastal area of one or more states. To some degree, this range reflects the extent to which individual projects have or have not been identified within the broader programs. In some geographic areas, the planning process may be advanced sufficiently to have identified specific restoration activities within a watershed. In other geographic areas, restoration programs may still require additional planning and review of restoration options before identifying specific actions. In addition, these geographic areas reflect the anticipated collaboration — between members, among funding partners, and across states — needed to address broader ecosystem stressors. Members will continue to identify priority watersheds or estuaries as they identify specific projects for implementation within the programs.

The Council recognizes that ensuring the use of the best available science (BAS) is critical to working at geographic scales of watersheds or larger geographic areas. The Council’s 2016 Comprehensive Plan Update committed to measuring and delivering results, acknowledging that identifying science-based targets for restoration and monitoring improves restoration outcomes and assists in addressing critical uncertainties. FPL 3b supports this commitment by

funding activities that have identified metrics of success and also by allocating a percentage of funding to monitoring and data management (for implementation projects).

While Council members were not required to submit detailed monitoring plans with each proposal, they will be required to do so in order to receive funding. Monitoring plans will describe the metrics and ecological parameters that will be monitored to track the performance of FPL3b activities. Working in coordination with its Gulf restoration funding partners, including the Natural Resources Damage Assessment (NRDA) trustees and the National Fish and Wildlife Foundation (NFWF), the Council has identified a suite of RESTORE Council Project Metrics ([RESTORE Council 2020b](#)). These metrics are used as a foundation to monitor and evaluate the efficacy of funded activities in meeting the Council's goals and objectives and to track annual performance. Using these consistent metrics, the benefits of FPL projects may be synthesized and described within their respective watersheds.

Similarly, using consistent metrics across activities implementing the same restoration techniques in different geographic areas may allow the Council to evaluate the impact of its investments across the Gulf. For example, the FPL 3b Internal BAS Review Panel discussions highlighted similarities in the water quality improvement programs proposed by Florida, Alabama, Mississippi, and Texas. Panelists agreed that synergies could be fostered across these states by adopting shared metrics, measures, and monitoring methodologies ([RESTORE Council 2020c](#)).

Coordinating, Collaborating, and Connecting Gulf Restoration Activities

Consistent with its Comprehensive Plan commitment, the Council recognizes that coordination and collaboration among members and our restoration partners is critical to the success of Gulf restoration. To maximize ecosystem benefits, the Council continues to pursue opportunities to align and leverage activities funded from Bucket 2 with investments made by other coastal restoration programs, as well as its own work in Buckets 2 and 3. As implementation of activities continues, the Council will continue to consider the synergistic benefits of its investments with those of other programs, including NRDA and NFWF.

Building on Partnerships and Leveraging

The Council remains committed to leveraging resources with funding partners to maximize the impact of Bucket 2 investments. Through its collaborative process for developing FPL 3b, the Council identified several opportunities to leverage other funding streams. For example:

- The *Enhancing Gulf Waters through Forested Watershed Restoration* program, sponsored by the U.S. Department of Agriculture (USDA), will be implemented in a way that attracts additional partners and investors, including conservation organizations, universities, local governments, and others. Such an approach may create leveraging opportunities beyond that which is currently identified, increase potential for innovative solutions, and increase positive outcomes of forest restoration for the Gulf Coast region.
- The *Chenier Plain Ecosystem Restoration Program*, sponsored by Texas, intends to restore and conserve high-quality coastal habitats within the Chenier Plain complex of

Texas. The effort to restore the Texas Chenier Plain has been ongoing since at least 1990. In 2013, the Salt Bayou Marsh Workgroup (Workgroup) published a restoration plan describing the status of the Texas Chenier Plain, a review of past and ongoing projects, and recommendations for future work. Workgroup members include federal and state agencies, non-governmental organizations, and local and regional governments. The FPL 3b program will further leverage the decades of experience and technical recommendations of the Workgroup and other stakeholders to implement priority activities in this region.

- The *Florida Water Quality Improvement Program*, sponsored by Florida, is intended to improve water quality and quantity by building upon and implementing restoration plans and strategies developed by Florida through previous efforts. Florida has designed the program in a way that will leverage Deepwater Horizon NRDA funds, as well as other federal and state funds. Project selection under this FPL 3b program will consider each project's ability to leverage other funds to expand the impact of awards.

Coordination with Ongoing Council-led Restoration

In addition to generally aligning FPL 3b investments with the [2015 Initial FPL](#) and [FPL 3a](#), the Council will extend or directly build upon some of the activities it previously approved for funding. For example:

- The *Texas Land Acquisition Program for Coastal Conservation*, sponsored by Texas, will greatly expand strategic watershed-based land protection investments that the Council made in its 2015 Initial FPL through the Bahia Grande Coastal Corridor and Bayou Greenways acquisition projects. This newly-proposed, coastwide acquisition program will utilize lessons learned to increase the resiliency and environmental quality of the Texas coast by accommodating natural buffers to erosion, storm surge, flooding, and sea level rise while preserving fish and wildlife habitat for the future.
- The *Apalachicola Regional Restoration Initiative (ARRI): Strategies 2 & 3* program, sponsored by USDA, will build on the *Tate's Hell Strategy 1* project funded in the 2015 Initial FPL. This FPL 3b program will focus on restoring longleaf pine, coastal ecosystems, and hydrology within the Apalachicola watershed, in Florida.
- The *Coastal Nearshore Habitat Restoration and Development Program* in Mississippi, sponsored by Mississippi, will build upon two planning efforts undertaken through NFWF's Gulf Environmental Benefit Fund (NFWF-GEBF) and the Enhancing Opportunities for Beneficial Use of Dredge Sediments project funded in the 2015 Initial FPL. These planning efforts are currently funding engineering, design, and permitting on specific projects that could potentially be implemented through this FPL3b program.
- The *Gulf of Mexico Coast Conservation Corps Program*, sponsored by the U.S. Department of Commerce/National Oceanic and Atmospheric Administration (NOAA), and the *Tribal Youth Coastal Restoration Program*, sponsored by the U.S. Department of the Interior/Bureau of Indian Affairs (BIA), will continue the work of the *Gulf of Mexico Habitat Restoration via Conservation Corps Partnerships* program funded in the 2015 Initial FPL. Further, these two programs leverage one another. Both seek to enhance the environmental vitality of the area's natural resources while also building the local coastal

restoration workforce and giving young adults the skills and experience needed to find jobs in this field. Initial connections were also made between GulfCorps' partner organizations and the Tribal Youth Conservation Corps to inform past and future Tribal Corps graduates of GulfCorps recruiting opportunities as tribal students advance their career development. Such coordination and awareness will continue under these FPL 3b programs to provide restoration benefits throughout the Gulf.

- The *Coastal Alabama Regional Water Quality Program*, sponsored by Alabama, will continue planning and invest in implementation of watershed plans that the Council previously funded for this geographic area. Leveraging local and regional expertise, these plans were developed for Alabama through an agreement with the Mobile Bay National Estuary Program.
- The Council will also build upon investments made in FPL 3a in the Perdido watershed. In FPL 3a, the Council approved planning and implementation funds for the *Perdido River Land Conservation and Habitat Enhancements* project in Alabama. In FPL 3b, the Council will provide planning funds to Alabama for the *Perdido Watershed Water Quality Improvements and Restoration Assessment Program*. This FPL 3b program will coordinate the location and sequencing of additional restoration projects that could improve water quality and habitat and to develop monitoring protocols to assess the potential collective impacts of restoration projects within the watershed. Further, the Florida water quality and acquisition programs may offer opportunities for Florida and Alabama to collaborate on conservation work in this shared watershed.

Many of the activities in FPL 3b also increase investments that are being made in Gulf coast states with Buckets 1 and 3 funds. For example, the *Water Quality Improvement Program for Coastal Mississippi Waters*, sponsored by Mississippi, will be coordinated with water quality investments the State is making using funding from Buckets 1 and 3. Collectively, these funds, as overseen by Mississippi, will allow for the advancement of priority projects to improve the condition of the Mississippi Sound watershed.

In addition to leveraging on-the-ground restoration activities, FPL 3b activities continue to build upon the science-based decision-support tools funded by the Council in the 2015 Initial FPL. For example, the FPL 3b Internal BAS Review Panel discussions highlighted how hydrologic restoration programs, such as the *Enhancing Gulf Waters Through Forested Watershed Restoration* program, sponsored by USDA, will be able to use the streamflow data modeled by the 2015 Initial FPL *Baseline Flow, Gage Analysis & On-Line Tool to Support Restoration* project to calibrate soil and water assessment tools ([RESTORE Council 2020c](#); [Rodgers et al. 2018](#)). Similarly, the Internal BAS Review Panel also discussed other Council-funded science tools, such as the Council's *Gulf Coast Monitoring and Assessment Portal* ([NOAA and USGS 2020](#)) and the *Strategic Conservation Assessment for Gulf Landscapes* tools ([Samiappan et al., in prep](#)). These tools can provide support for FPL 3b activities by identifying reference monitoring activities and opportunities for land acquisition.

Addressing Risk, Sustainability, and Resilience

The Council's Comprehensive Plan recognizes that healthy ecosystems are essential for thriving and resilient coastal communities. Across the Gulf coast, cultures, economies, and communities are built upon and sustained by natural ecosystems that provide clean water, abundant fisheries, storm protection, and other critical benefits. By restoring and protecting the Gulf environment through investments made in FPL 3b and other funding decisions, the Council can help communities enhance their ability to recover from natural and man-made disasters and thrive in the face of changing environmental conditions. For example:

- The *Florida Gulf Coast Resiliency Program*, sponsored by Florida, supports the primary RESTORE Comprehensive Plan goal to enhance community resiliency through activities to identify vulnerabilities and implement sustainable solutions to improve coastal resiliency. Developing strategies to address resiliency is critical to Florida's ability to adapt to a changing coastline. This program is intended to provide environmental benefits such as resiliency improvements, protections against wave energy and storm surge, habitat protection sustaining healthy wildlife populations, and recreation and tourism opportunities.
- The *Shoreline Protection Through Living Shorelines* program, sponsored by Texas, supports the construction of large-scale living shorelines that will enhance the resiliency of coastal Texas by stabilizing estuarine shorelines and protecting large tracts of land and coastal resources along the Texas coast. Living shorelines can reduce damage to shorelines by damping wave action and trapping sediments, thereby elevating shore profiles to a level that will support marsh vegetation. This program is also intended to enhance ecosystem function by creating hard structure habitats for fish and oysters, removing excess nutrients and sediments, providing seagrass protection, and improving water quality.

FPL 3b Projects and Programs

The activities included in FPL 3b are listed below, along with their location and the types of work that will be funded. All associated environmental compliance documentation may be found on the [RESTORE Council's website](#).

Funded Priorities List 3b				
Activity	Geographic Area	Type	Amount Category 1	Amount Category 2
Shoreline Protection Through Living Shorelines	Texas	Planning	\$1,286,250	-----
		Implementation	-----	\$10,963,750
Texas Coastal Water Quality Program	Texas	Planning	\$3,262,500	-----
		Implementation	-----	\$19,237,500
Texas Land Acquisition Program for Coastal Conservation	Texas	Planning	\$1,579,500	-----
		Implementation	\$22,720,500	-----
Wind-Tidal Flat Restoration Pilot	Texas	Planning & Implementation	\$321,000	----
Chenier Plain Ecosystem Restoration Program	Texas	Planning	\$1,700,000	-----
		Implementation	-----	\$18,300,000
Coastal Nearshore Habitat Restoration and Development Program in Mississippi	Mississippi Sound	Planning	\$6,920,000	-----
		Implementation	-----	\$27,680,000
Water Quality Improvement Program for Coastal Mississippi Waters	Mississippi Sound	Planning	\$6,850,000	-----
		Implementation	-----	\$27,400,000
Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)	Mobile Bay and Mobile-Tensaw Delta, AL	Planning	\$1,000,000	-----

Funded Priorities List 3b				
Activity	Geographic Area	Type	Amount Category 1	Amount Category 2
Coastal Alabama Regional Water Quality Program	Mobile Bay and Mobile-Tensaw Delta, AL; Perdido Bay and River, AL-FL	Planning	\$16,130,750	-----
		Implementation	-----	\$19,000,000
Develop Ecological Flow Decision-Support for Mobile River and Perdido River Basins	Mobile Bay and Mobile-Tensaw Delta, AL; Perdido Bay and River, AL-FL	Planning & Implementation	\$3,400,000	-----
Perdido Watershed Water Quality Improvements and Restoration Assessment Program	Perdido Bay and River, AL-FL	Planning	\$1,500,000	-----
Apalachicola Regional Restoration Initiative: Strategies 2 & 3	Florida	Planning & Implementation	\$5,000,000	-----
Florida Gulf Coast Resiliency Program	Florida	Planning	\$5,600,000	-----
		Implementation	-----	\$8,400,000
Florida Gulf Coast Tributaries Hydrologic Restoration Program	Florida	Planning	\$3,437,500	-----
		Implementation	-----	\$10,312,500
Florida Water Quality Improvement Program	Florida	Planning	\$6,750,000	-----
		Implementation	-----	\$20,250,000
Florida Strategic Gulf Coast Land Acquisition Program	Florida	Planning	\$1,400,000	-----
		Implementation	\$12,600,000	-----
Gulf Coast Conservation Reserve Program	Gulfwide (Florida, Alabama, Mississippi)	Planning & Implementation	\$3,100,000	-----

Funded Priorities List 3b				
Activity	Geographic Area	Type	Amount Category 1	Amount Category 2
<u>Enhancing Gulf Waters through Forested Watershed Restoration</u>	Gulfwide (Florida, Alabama, Mississippi)	Planning & Implementation	\$23,000,000	-----
<u>Gulf of Mexico Coast Conservation Corps Program</u>	Gulfwide (All five states)	Implementation	\$11,971,250	-----
<u>Tribal Youth Coastal Restoration Program</u>	Gulfwide (Florida, Alabama, Mississippi, Louisiana)	Planning & Implementation	\$927,000	-----

Summary Activity Descriptions by Geographic Area

Summary descriptions of each activity are presented according to the geographic area in which they will occur. Links to more detailed activity descriptions are provided in each summary description. Per the Council's process for developing FPL 3b, these activity descriptions were revised from the submitted proposals based upon internal and external reviews, as well as continued collaboration among Council members to determine the activities and funding levels to include in draft FPL 3b. The proposal "package" containing the reviews, responses, Internal BAS Review Panel discussions, and original proposals, are also available to the public on the [Council's website](#).

Coastal Texas, including Chenier Plain

Coastal Texas includes approximately 365 miles of Gulf of Mexico shoreline, an area that supports a suite of important habitats, including estuarine waters, fresh, brackish and saline wetlands, saline flats, forests, prairies, rivers and streams (TSDC 2014). These habitats are under increasing pressure from coastal population growth, in addition to the threats of sea level rise, coastal storms, and erosion. Priority issues of concern in the geographic areas of Texas and Chenier Plain, as identified by the Council's [2019 Planning Framework](#), include habitat fragmentation and conversion, loss of hydrologic connectivity, increased flood and storm damage, and water quality and quantity issues. To help address these challenges, the Council is investing in four large-scale programs in Texas that will work to restore hydrologic connectivity and natural salinity regimes, protect natural shorelines through land acquisition and sediment placement, and reduce the delivery of excess nutrients and other pollutants to watersheds. In addition, the Council will fund a pilot project in Laguna Madre to investigate the best methods to restore tidal flats, which are critical habitats for shorebird and waterbird species. This work could help to determine how best to approach future large-scale tidal flat restoration efforts in Texas and across the Gulf coast ([Figure 5](#)).

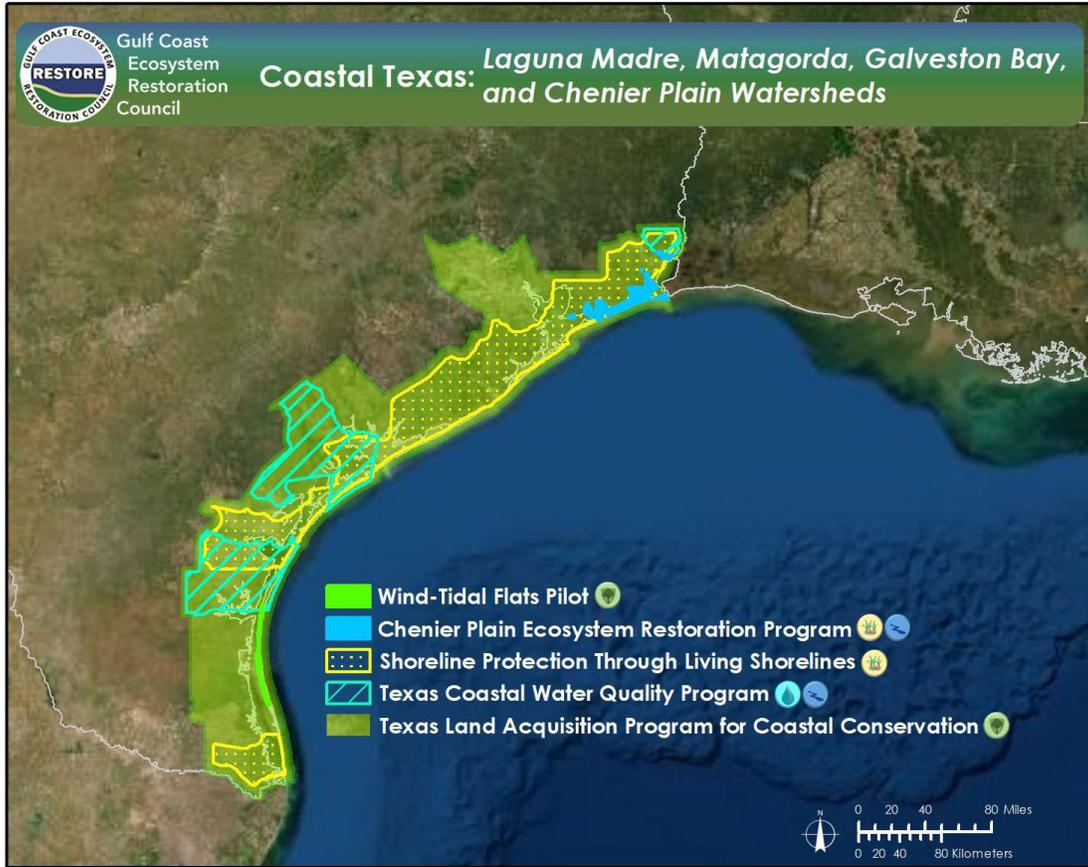


Figure 5. Map highlighting the projects and programs included in FPL 3b in the Coastal Texas geographic area, including the Chenier Plain. Icons next to project/program names indicate the 2019 Planning Framework approaches to be implemented by each activity.

Shoreline Protection through Living Shorelines

The [Shoreline Protection Through Living Shorelines program description](#), developed and sponsored by Texas, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$1,286,250 in planning funds as FPL Category 1 for the *Shoreline Protection Through Living Shorelines program*. In addition, the Council has included the implementation component for potential future funding as an FPL Category 2 activity, and is reserving \$10,963,750 for this component, pending further review and a Council vote. The program may be implemented over the course of 4 years along the Gulf Intracoastal Waterway, vulnerable bay shorelines, and other waterfront locations along the Texas coast that have been identified as suitable areas for beneficial placement of dredge materials ([Figure 5](#)). Texas, through the Texas Commission on Environmental Quality (TCEQ), is the sponsor of this program.

This program will construct large-scale living shorelines to stabilize estuarine shorelines and protect large tracts of land and coastal resources along the Texas coast. Living shorelines consist of marsh vegetation planting typically combined with rock breakwaters or oyster reefs to protect bay shorelines and marshes from loss due to erosion. The program will target highly eroding shorelines along the Gulf Intracoastal Waterway, bay shorelines, and other locations that have been identified as suitable areas for a living shoreline installation. This program will also address degrading coastal structures that need repair, such as critical seawalls, and add living shoreline elements to enhance their protective capabilities.

The primary Comprehensive Plan goal of this program is to restore and conserve habitat ([Figure 6](#)). A number of factors have contributed to bay and channel shoreline loss, including boat traffic, altered sediment regimes, and increasing rates of relative sea level rise ([Prosser et al. 2018](#); [Sweet et al. 2017](#)). As a result, growing numbers of private and public waterfront landowners are looking to harden or armor shorelines to stop or reduce rates of shoreline loss, which has produced a patchwork of bulkheads and riprap along the shore and has greatly reduced and degraded natural shoreline habitats for fish and wildlife species. Living shorelines can reduce damage to shorelines by damping wave action and trapping sediments, thereby elevating sub-aqueous shore profiles to a level that would support marsh vegetation and provide beneficial habitat to estuarine dependent species through nature-based solutions.

Implementation of this program has the potential to protect wetlands, reduce erosion, improve water quality, create habitat, provide land reclamation, and increase coastal resiliency by buffering storm surges ([Arkema et al. 2013](#); [Barbier et al. 2013](#); [Manis et al. 2015](#)). Living shorelines are resilient as they mimic natural shoreline processes, having the ability to adapt to changing conditions to endure over time ([Mitchell et al. 2019](#)). In addition, strategic placement of shore protection projects will facilitate the use of dredge material for marsh restoration activities.



Figure 6. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

Much of the work has already been done to identify projects that could be funded within this program. Projects selected for implementation will build on Texas’ stakeholder-driven process for developing the [2019 Planning Framework](#) and for selecting preliminary projects for FPL3 consideration. During this earlier work, county judges and two workgroups (state and federal agency and non-governmental organization representatives) submitted projects for FPL3 consideration. Coastal experts, Harte Research Institute staff, and TCEQ staff reviewed the projects and selected 23 for public comment. These 23 projects included multiple living shoreline projects that may be considered under this program.

The decision criteria to select the specific projects under this program will include, but are not limited to, the following: (1) addresses issues presented in the program proposal; (2) amounts of funds available for the program; (3) readiness; (4) leveraging opportunities; (5) scalability; (6) risk-benefit ratio; and (7) distribution of funds across the Texas coastline. The process to select projects will include the requirement that projects will have to have been already vetted through Texas’ prior efforts to develop the 2019 Planning Framework or through other public processes such as the [TGLO’s Coastal Resiliency Master Plan](#) or NRDA- and NFWF-related activities. Notification of the projects selected to fund will be posted on the Texas RESTORE website.

The planning component of this program is covered by the Council’s National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. The implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the [“FPL Categories”](#) section of this document.

Texas Coastal Water Quality Program

The [Texas Coastal Water Quality Program description](#), developed and sponsored by Texas, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$3,262,500 in planning funds as FPL Category 1 for the *Texas Coastal Water Quality Program*. In addition, the Council has included the implementation component for potential future funding as an FPL Category 2 activity, and has reserved \$19,237,500 for this component, pending further review and a Council vote. The program will be implemented over the course of 4 years within the Texas watersheds that drain to the Gulf of Mexico ([Figure 5](#)). Texas, through the Texas Commission on Environmental Quality (TCEQ), is the sponsor of this program.

This program aims to restore water quality and freshwater inflows on the Texas coast using a variety of proven methods. These methods include the implementation of best management practices (BMPs) in Texas coastal watersheds to reduce nonpoint source pollution, the repair and enhancement of drainage channels and outfalls to improve stormwater flow and increase freshwater inflow to adjacent marshes, and the construction of living shoreline features to reduce erosion and improve water quality.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 7](#)). This program is intended to address environmental stressors focused on: (1) stormwater runoff; (2) freshwater inflows; (3) floodplain management; (4) sediment control; and (5) water quality for activities related to coastal communities, wetlands, and agriculture. Coastwide, the implementation of BMPs to reduce nonpoint source pollution will improve the water quality of Texas bay systems by reducing nutrient loading, thereby reducing the instances of eutrophication (i.e., excessive nutrient enrichment), hypoxia or harmful algal blooms that impact economically valuable fisheries and sensitive habitats ([Park et al. 1994](#)). This program will also improve freshwater inflows and restore a more natural hydrology by improving sections of existing drainage channels and tributaries and extending outfalls to introduce more sediment and freshwater, helping to restore marshes suffering from impacts of development, saltwater intrusion, and inundation. Additionally, this program will consider improving water quality through the implementation of projects that utilize living shorelines, which consist of marsh plantings, and, in higher energy environments, the construction of breakwaters to reduce erosion issues.

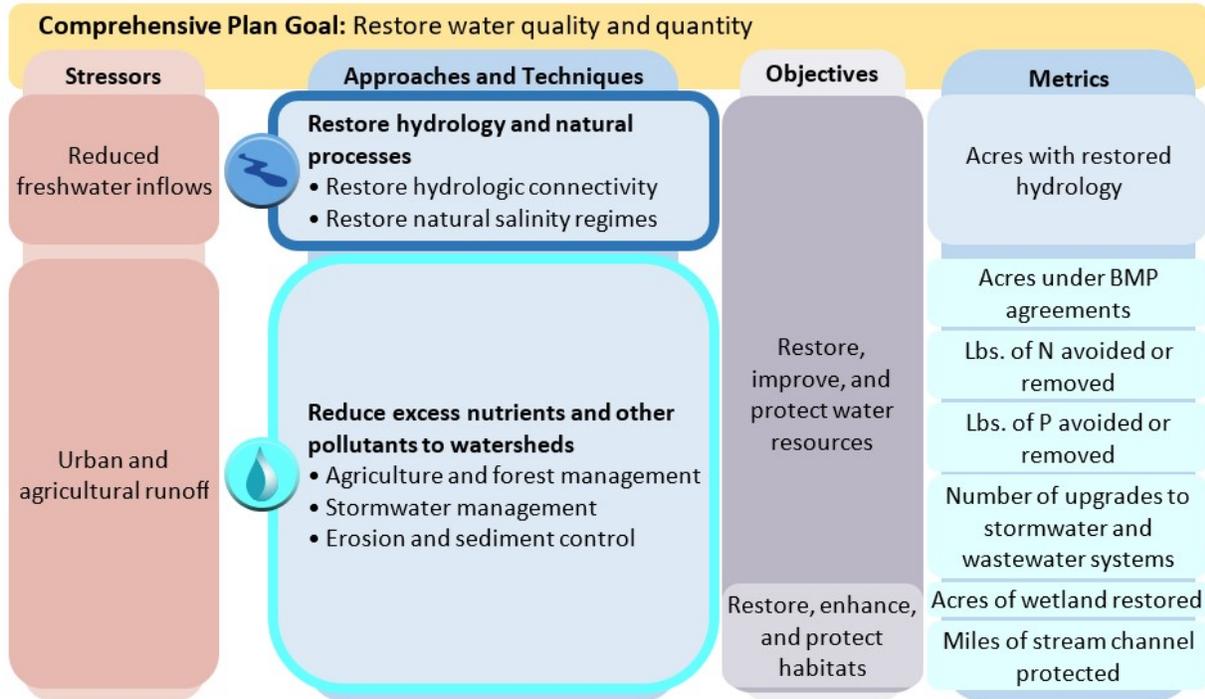


Figure 7. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

Much of the work has already been done to identify projects that could be funded within this program. Projects will be selected for implementation building on Texas’ stakeholder-driven process for developing the [2019 Planning Framework](#). During this earlier work, county judges and two workgroups (state and federal agency and non-governmental organization representatives) submitted projects for FPL3 consideration. Coastal experts, Harte Research Institute staff, and TCEQ staff reviewed the projects and selected 23 for public comment. These 23 projects included multiple water quality improvement projects that will be considered under this program.

The decision criteria to select the specific projects under the Texas Coastal Water Quality program will include, but are not limited to, the following: (1) addresses issues presented in the program proposal; (2) amounts of funds available for the program; (3) readiness; (4) leveraging opportunities; (5) scalability; (6) risk-benefit ratio; and (7) distribution of funds across the Texas coastline. The process to select projects will include the requirement that projects will have to have been already vetted through Texas’ prior efforts to develop the 2019 Planning Framework or through other public processes such as the [TGLO’s Coastal Resiliency Master Plan](#), or NRDA- and NFWF-related activities. Notification of the projects selected to funds will be posted on the Texas RESTORE website.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. The implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the "[FPL Categories](#)" section of this document.

Texas Land Acquisition Program for Coastal Conservation

The [Texas Land Acquisition Program for Coastal Conservation description](#), developed and sponsored by Texas, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$24,300,000 in planning and implementation funds as FPL Category 1 for the *Texas Land Acquisition Program for Coastal Conservation* program. The program will be implemented over the course of 4 years within the Texas Coastal Zone ([Figure 5](#)). Texas, through the Texas Commission on Environmental Quality (TCEQ), is the sponsor of this program.

This program will acquire large, high-quality coastal zone properties in Texas with locations selected on the basis of greatest value to the coastal environment now and in the future, considering the pressures of environmental change and development. Targeted habitats will include urban green corridors, riparian, prairie and other upland, wooded wetlands, or bay and chenier wetlands. This program aims to preserve the existing environment now rather than attempt to replace the resources once they are lost.

The primary Comprehensive Plan goal of this program is to restore and conserve habitat ([Figure 8](#)). The 2019 Texas Coastal Resiliency Master Plan (TCRMP) scored land acquisition projects highly for addressing a variety of environmental issues of concern, including: (1) altered, degraded, or lost habitat, (2) existing and future coastal storm damage, (3) coastal flood damage, (4) impact on water quality and quantity, and (5) impact on coastal resources ([TGLO 2019](#)). Programmatic land acquisition may also allow the environment to adjust to long-term changes while providing continued environmental benefits that span from protection of habitats and conservation of biodiversity to improvement of water quality and storm buffering.

Through fee title acquisition or purchase of conservation easements to promote long-term habitat management consistent with the Protect and Conserve Coastal, Estuarine, and Riparian Habitats priority approach, this program will prevent habitat loss and degradation from coastal development by protecting large coastal properties that support a diverse and abundant array of plants and animals. The purpose is to acquire and conserve lands that drain to the Gulf of Mexico, including coastal, estuarine, and riparian habitats. Secondary benefits may be realized in better water quality and protection of adjacent areas with some land acquisitions also serving to provide areas where the transition of coastal environments can occur as sea level rises, thus offsetting the loss of intertidal environments ([TGLO 2019](#)).

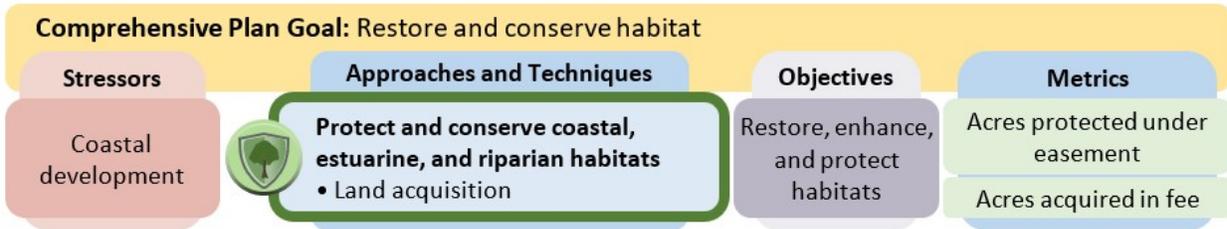


Figure 8. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

Much of the work has already been done to identify projects that could be funded within this program submission. This program will develop a process for selecting properties for acquisition that builds on Texas’ stakeholder-driven process for developing the [2019 Planning Framework](#) and selecting preliminary projects for FPL3 consideration. During this earlier work, county governments, non-governmental organizations (NGO), and a workgroup made up of Texas NRDA staff and TCRMP representatives submitted 38 projects for FPL3 consideration. Coastal experts, Harte Research Institute staff, and TCEQ staff reviewed the projects and selected 23 for public comment. Among these 23 projects, there are 10 projects that include land acquisition, which this program will consider for implementation.

The selection process will consider what provides the greatest value to the coastal environment, both now and in the future as the human and natural landscapes continue to evolve. The program will explore the use of the previously-funded [2015 Initial FPL Strategic Conservation Assessment for Gulf Lands \(SCA\)](#) tools ([SCA 2020](#)) as a valuable resource to augment the process of land selection. Additional natural and relevant socioeconomic and human health environmental data and analyses will be required. To ensure success of this program, the TCEQ will reach out to the state, federal, and NGO groups who have collaborated on developing Texas’ FPL 3b program to this point. The combined expertise and experience of this group in coastal land conservation (including experience gained from FPL 1 land acquisitions) will be a significant resource to the program.

Once an area has been targeted for acquisition, the following general steps will be required: (1) complete due diligence; (2) secure the land or easement with a purchase contract; and (3) convey the property for long-term management. Ownership of the acquired land may be held by the federal, state, or local government or an NGO depending on the greatest advantage for acquisition, leveraging, and conservation. It is Texas’ intent to consider leveraging as a criterion in selecting projects, including the recognition of previous projects and the potential for a new project to add to the cumulative impact to the area.

The planning component of this program will be covered by the Council’s National Environmental Policy Act Categorical Exclusion for planning and related activities. USDA has

advised the Council that the implementation component of this program is covered by a USDA Categorical Exclusion (CE). The Council is using this CE and the associated environmental compliance documentation to support the funding approval of this program component, consistent with Section 4(d)(4) of the Council's National Environmental Policy Act (NEPA) Procedures, which enables the Council to use member CEs, where appropriate. In making this decision, the Council considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, tribal interests and historic properties, where applicable.

Wind-Tidal Flat Restoration Pilot

The [Wind-Tidal Flat Restoration Pilot project description](#)³, developed and sponsored by the U.S. Department of the Interior, provides additional detail on the project, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$321K in planning and implementation funds as FPL Category 1 for the *Wind-Tidal Flat Restoration Pilot project*. The project is to be implemented over the course of 2 years on Padre Island National Seashore, Texas ([Figure 5](#)). The U.S. Department of the Interior (DOI), on behalf of the U.S. National Park Service (NPS), is the sponsor of this project.

This pilot project will lead to the restoration of and improved resiliency for 5 acres of wind-tidal flat habitat on Padre Island National Seashore, Texas. Restored natural processes will enhance the overall health, availability, and diversity of habitat that supports a variety of shorebirds and wading bird species ([Withers 1994](#)). The project will enhance bird populations that contribute to restored areas designated as a Site of International Importance by the Western Hemisphere Shorebird Reserve Network ([WHSRN 2019](#)).

The primary Comprehensive Plan goal of this project is to restore and conserve habitat ([Figure 9](#)). A variety of public lands managed by the NPS have impaired coastal habitat. Specific to this project, previous energy exploration efforts caused significant vehicular impacts to wind-tidal flats. This resulted in altered wind-driven inundation by Laguna Madre waters, thus affecting algal growth and degrading foraging habitat for migratory birds ([Smith et al. 2013](#)).

This project will directly address energy exploration stressors by experimentally testing wind-tidal flat restoration techniques on impacted tidal wetlands at Padre Island National Seashore. These wind-tidal flat areas protect portions of the largest freshwater wetland in Texas, conserve protected species, and provide wintering habitat for millions of migratory birds. This project ultimately will provide for public safety and restore important habitat on public lands along

³ This project description, originally submitted as part of the proposal titled "Decommissioning Onshore Orphaned Energy Facilities on NPS and FWS lands (DOI/NPS & FWS)" has been revised in response to internal and external reviews as well as continued collaboration among Council members to determine the activities and funding levels to include in FPL 3b.

coastal Texas while building upon the decommissioning oil investments made in the [2015 Initial FPL](#).

Consistent with the [2019 Planning Framework](#) priority approach to develop tools for planning and evaluation and the Comprehensive Plan objective to improve science-based decision-making processes, techniques developed as part of this project may be used by state and federal land management agencies to provide accurate cost estimates for tidal flat restoration and reduced uncertainty about restoration success.

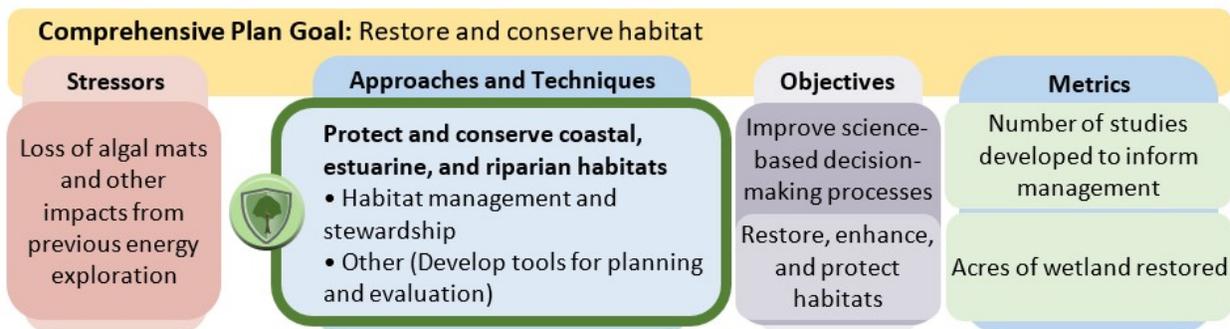


Figure 9. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track project success (fourth column). See [Figure 3](#) for more information on interpreting the above figure.

The planning component of this project is covered by the Council’s National Environmental Policy Act Categorical Exclusion for planning and related activities. DOI has advised the Council that the implementation component of this project is covered by a NPS Categorical Exclusion (CE). The Council will use this CE and the associated environmental compliance documentation to support the funding approval of this project, consistent with Section 4(d)(4) of the Council’s National Environmental Policy Act (NEPA) Procedures, which enables the council to use member CEs, where appropriate. In making this decision, the Council considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, tribal interests and historic properties, where applicable.

Chenier Plain Ecosystem Restoration Program

The [Chenier Plain Ecosystem Restoration Program description](#), developed and sponsored by Texas, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$1.7M in planning funds as FPL Category 1 for the *Chenier Plain Ecosystem Restoration Program*. In addition, the Council has included the implementation component for potential future funding as an FPL Category 2 activity, and has reserved \$18.3M for this component, pending further review and a Council vote. The program will be

implemented over the course of 4 years in the Chenier Plain of southeast Texas, including locations in four upper coastal counties: Galveston, Orange, Jefferson, and Chambers (Figure 5). Texas, through the Texas Commission on Environmental Quality (TCEQ), is the sponsor of this program.

This program will restore and conserve high-quality coastal habitats within Texas. Targeted habitats will include freshwater to estuarine marsh, coastal prairie grasslands, tidal flats, creeks, and basins, all of which create an extremely productive complex for diverse fish and wildlife resources and protects inland areas from storm surge. Potential partners may include the U.S. Army Corps of Engineers, Texas Parks and Wildlife Department, Ducks Unlimited, U.S. Fish and Wildlife Service, and local and regional governments.

The primary Comprehensive Plan goal of this program is to restore and conserve habitat (Figure 10). Stressors that will be addressed include channelization, subsidence, erosion, and saltwater intrusion. Implementation of this program has the potential to restore degraded wetlands, reduce erosion and habitat loss, improve water quality, provide land reclamation, and increase coastal resiliency. Multiple restoration methods will be considered, including (1) beneficial use of dredge material to restore wetlands and elevate marshes; (2) installation of fresh water siphons to route freshwater underneath the Gulf Intracoastal Waterway to the lower Chenier Plain; (3) installation of breakwaters to reduce shoreline erosion; and (4) modification of levees. This work will yield habitat benefits for fish and wildlife species and restore ecosystem services such as storm surge buffering, water quality maintenance, sediment retention, nutrient regulation, and recreation.

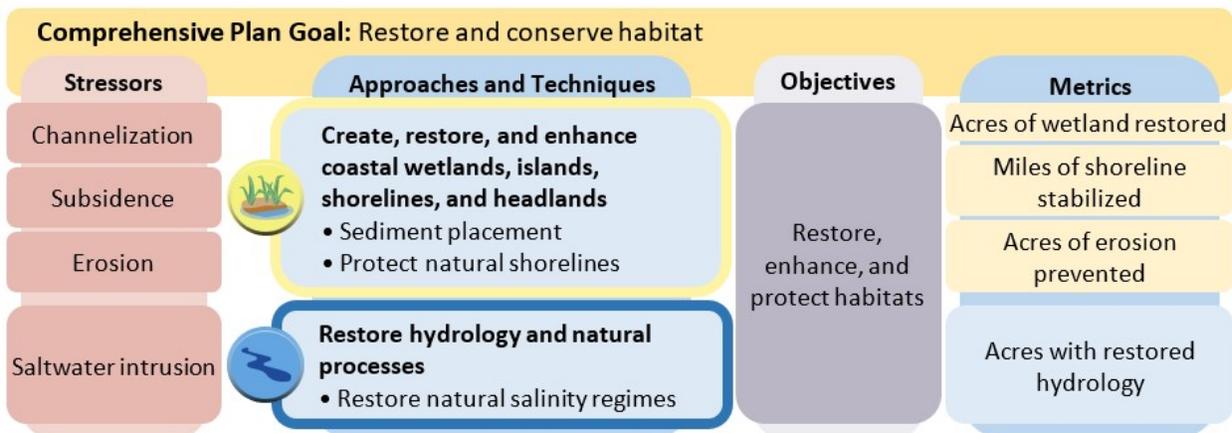


Figure 10. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See Figure 3 for more information on interpreting the above figure.

This program will select projects for implementation by building on Texas' stakeholder-driven

process for developing the [2019 Planning Framework](#) and for selecting preliminary projects for FPL3 consideration. During this earlier work, county judges and two workgroups (state and federal agency and non-governmental organization representatives) submitted projects for FPL3 consideration. Coastal experts, Harte Research Institute staff, and TCEQ staff reviewed the projects and selected 23 for public comment. These 23 projects included 5 multicomponent projects that address the Chenier Plain that may be considered under this program.

The decision criteria to select the specific projects under the program will include, but are not limited to, the following: (1) addresses issues presented in the program proposal; (2) amounts of funds available for the program; (3) readiness; (4) leveraging opportunities; (5) scalability; (6) risk-benefit ratio; and (7) distribution of funds across the Texas Chenier Plain. The process to select projects will include the requirement that projects have been vetted through Texas' prior efforts to develop the 2019 Planning Framework or through other public processes such as the TGLO's [Coastal Resiliency Master Plan](#), or NRDA and NFWF related activities. Notification of the projects selected to fund will be posted on the Texas RESTORE website.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. The implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the "[FPL Categories](#)" section of this document.

Mississippi Sound, Mississippi

The Mississippi Sound geographic area encompasses approximately 1,545 square miles and consists of a variety of ecologically and economically important habitats, including barrier islands, marsh, maritime forest, pine savannah, cypress swamp, and oyster reefs (MDEQ 2019). Mississippi's coastal watersheds are threatened by several stressors, including sea-level rise, pollution from stormwater and wastewater system failures, altered hydrologic regimes, and urban and industrial development (MDEQ 2018). Priority issues of concern in the Mississippi Sound geographic area, as identified by the Council's 2019 Planning Framework, include coastal habitat loss, increased flood and storm damage, and water quality issues. To help address these challenges, the Council is investing in two large-scale programs in Mississippi that will build off of previously-funded Council planning and implementation activities to create and restore wetland habitats through sediment placement and shoreline protection, and reduce the delivery of excess nutrients and other pollutants to the Mississippi watersheds (Figure 11).



Figure 11. Map highlighting the programs included in FPL 3b in the Mississippi Sound geographic area. Icons next to program names indicate the 2019 Planning Framework approaches to be implemented by each activity.

Coastal Nearshore Habitat Restoration and Development Program in Mississippi

The [Coastal Nearshore Habitat Restoration and Development Program in Mississippi description](#), developed and sponsored by Mississippi, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$6.92M in planning funds as FPL Category 1 for the *Coastal Nearshore Habitat Restoration and Development Program in Mississippi*. In addition, the Council has included a separate implementation component as an FPL Category 2 priority for potential funding and has budgeted \$27.68M for this implementation component, pending a future Council vote. The program will be implemented over the course of 10 years in the coastal waters of Mississippi, including the Mississippi Sound and Barrier Islands ([Figure 11](#)). Mississippi, through the Mississippi Department of Environmental Quality (MDEQ), is the sponsor of this program.

This program in Mississippi will support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region by creating, restoring, and enhancing coastal habitat through the dedicated sourcing of materials. To accomplish this, program activities include planning, engineering and design, and construction of habitat in the three coastal counties of Mississippi. To accelerate habitat creation and restoration, MDEQ may utilize multiple methods for sourcing habitat construction material, such as dedicated material sourcing from borrow sites, upland sites, and beneficial use of dredge materials.

The primary Comprehensive Plan goal of this program is to restore and conserve habitat ([Figure 12](#)). In Mississippi, increased development over time (as well as storms, sea level rise and other impacts) has accelerated the rate of wetland loss. Mississippi is estimated to have lost 60 percent of its wetlands statewide over the last 200 years ([Chapman and Reed 2006](#); [Dahl 1990](#)). Primary causes for wetland loss include erosion, increases in impervious surfaces in watersheds (e.g., roads, parking lots), agricultural practices, flood control structures (e.g., canals, ditches, levees), and industry. Although regulations and incentives have reduced wetland habitat loss since the 1970s, continued urban growth and other landscape alterations can leave wetlands open to hydrological and biological fluxes ([Mitsch and Gosselink 2000](#)) that negatively impact ecosystem functioning, including: (1) increased stormwater inflow; (2) increased sedimentation and nutrient loading; and (3) decreased species richness and abundance, including coastal bird species ([DeLuca et al. 2008](#)).

Coastal nearshore habitats provide many ecosystem services, including: (1) acting as natural buffers to protect shorelines from eroding, (2) storm surge protection; (3) fisheries production; (4) water quality enhancement through sediment and nutrient reduction, faunal support; (6) carbon reduction; and (7) habitat within the ecosystem. Wetland loss results in a reduction in the protection of inland areas against soil erosion and flooding as well as the refuge that many threatened and commercially important species use ([Chapman and Reed 2006](#)). The creation of new coastal nearshore habitats and the restoration of these habitats will continue to support and

increase these ecosystem services to coastal systems in Mississippi. The program builds from work funded by the [2015 Initial FPL](#), as well as NFWF GEBF projects.

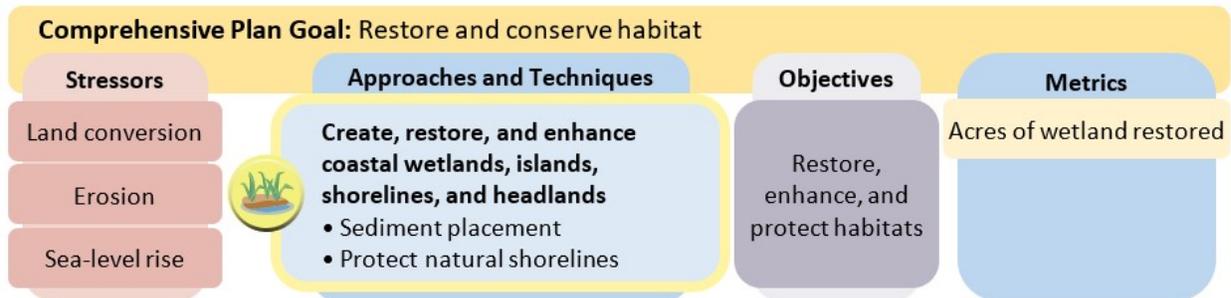


Figure 12. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

Site selection for coastal habitat restoration and creation will consider ecological principles as well as economic and implementation feasibility. MDEQ will support beneficial use site locations and designs which maximize direct and indirect ecological benefits to the extent practicable based on individual project dynamics. MDEQ will assess factors such as availability of material, proximity to material supply/dredging sites, material transport logistics, overall cost feasibility (e.g., cost estimates for containment, sourcing and transport of materials, and construction), and permitting.

Mississippi has been investing in multiple coastal habitat restoration projects. Unlike other coastal restoration programs, the landscape for coastal nearshore habitat restoration at large scales is limited by geographic variables, regulatory compliance measures, as well as opportunities to build back coastal habitat in strategic locations. Mississippi has undertaken two planning exercises that have identified several coastal habitat restoration locations through NFWF-GEBF and the 2015 Initial FPL Enhancing Opportunities for Beneficial Use of Dredge Sediments project ([MDEQ 2017](#)). From a large-scale perspective, several coastal habitat restoration sites have already been identified and prioritized within the Mississippi coastal landscape, including the following: (1) Deer Island (several ongoing coastal habitat restoration projects, including Deer Island Marsh Restoration [DIMR] IV, U.S. Army Corps of Engineers Lagoon, and the Mississippi Coastal Improvements Program [MsCIP] proposed expansion); (2) Round Island; (3) Greenwood Island; (4) Cat Island; (5) Pelican Key; (6) Wolf River; (7) Beardslee Lake; and (8) Graveline Bayou. Planning has occurred for each of these sites and they are in various phases of development (e.g., engineering and design, permitting, construction, land acquisition, etc.). Mississippi will continue to develop all of these sites, as practicable, but may also work with state and federal agencies to identify additional sites that will also allow strategic coastal habitat restoration that could take place under this program.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. The implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the "[FPL Categories](#)" section of this document.

Water Quality Improvement Program for Coastal Mississippi Waters

The [Water Quality Improvement Program for Coastal Mississippi Waters description](#), developed and sponsored by Mississippi, provides additional detail on the project, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$6.85M in planning funds as FPL Category 1 for the *Water Quality Improvement Program for Coastal Mississippi Waters (WQIP)*. In addition, the Council has included a separate implementation component for potential future funding as an FPL Category 2 activity, and will reserve \$27.4M for this component, pending further review and a Council vote. The program will be implemented over the course of 10 years in Mississippi watersheds that drain into the Gulf of Mexico ([Figure 11](#)). Mississippi, through the Mississippi Department of Environmental Quality (MDEQ), is the sponsor of this program.

This program will include a suite of linked activities that will restore water quality and quantity in the Mississippi Gulf Coast Region through the identification and implementation of water quality improvement projects. Program activities will include planning, engineering and design, septic-to-sewer conversion, implementation of new stormwater and wastewater systems, and repairing or upgrading existing stormwater and wastewater systems.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 13](#)). Water quality impairment in coastal systems is a global phenomenon ([Bennett et al. 2001](#); [Vörösmarty et al. 2010](#)) that is not only limited to nutrient pollution and associated hypoxia, but also tied with bacteriological impairment ([Mallin et al. 2000](#)). Mississippi has identified stressors in coastal waters, including nutrient and bacterial loading from pollutant sources, freshwater inputs and urban runoff.

This program will prioritize the improvement of water quality for promoting ecosystem health and restoring and revitalizing Mississippi's economy through the conversion of septic-to-sewer ([Kelly 2019](#)) and the implementation of stormwater and wastewater system improvement practices ([Reisinger et al. 2018](#)). These actions are anticipated to reduce nonpoint source pollutant loads to downstream coastal receiving water bodies. This will result in improvement in water quality of coastal waters and will provide in-situ benefits to living coastal marine resources, as well as the economy of the Mississippi Gulf Coast. The primary objective will be to restore, improve, and protect water resources and will target projects that reduce and treat nutrient and pollutant loading. This program is consistent with the priority approach to reduce excess nutrients and other pollutants to watersheds and downstream receiving waters.

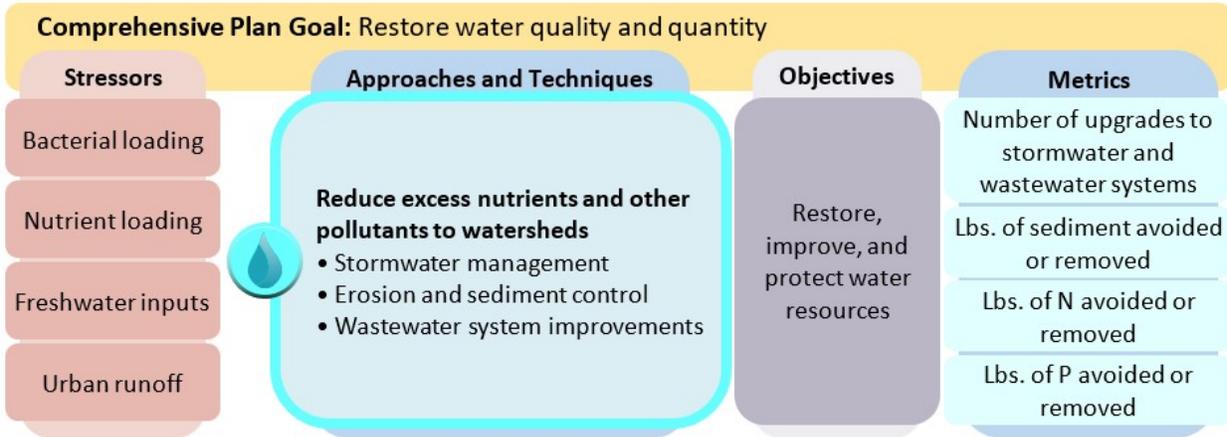


Figure 13. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specified projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

Projects will be identified through existing data and analysis that demonstrate connectivity to water quality impairments as well as through the source tracking process where data gaps exist. MDEQ may coordinate with local city and county entities to support identification of known wastewater and stormwater system failures contributing to water quality degradation. When needed, systematic source tracking may be utilized to identify sources and stressors of water quality degradation.

Source tracking uses the identified water quality impairments (e.g., beach advisory information, etc.) to establish hotspot-specific water quality sampling regimes in order to systematically work upstream to identify the source of the degradation. Source tracking activities may include water quality sampling, tracking of pollutants, flow monitoring, stormwater and wastewater system testing, and microbial source tracking, and may also include the sampling of marine nearshore sediments to provide an initial assessment of pollutant loading in the system. The source tracking process will provide analytical guidance and outline the next steps for project identification, when needed. The source tracking process will determine hotspots for bacterial concentrations moving along an upstream gradient.

Tributary contributions may be evaluated by examining the respective contributions, including potential concentrations and loads. Water sample analysis may be utilized to refine a specific project and/or the source of contamination project areas. Once an area or a specific project has been identified, additional due diligence (i.e., smoke testing, dye testing, and/or camera inspection), project scoping and coordination may be undertaken. Due diligence for individual projects will be unique, requiring varying degrees of additional work that may include cost benefit analyses, economic feasibility, preliminary engineering, environmental compliance and additional pre-construction activities.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. The implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the [“FPL Categories”](#) section of this document.

Mobile Bay and Mobile-Tensaw Delta, Alabama, Perdido Bay and River, Alabama-Florida

The Mobile Bay and Mobile-Tensaw Delta and Perdido Bay and River geographic areas include barrier islands, fresh and saltwater wetlands, coastal maritime forests, longleaf pine habitats, seagrass, oyster reefs, streams and rivers and associated riparian areas (MBNEP 2013). These ecologically and economically important habitats have been degraded by a number of stressors, including nutrient-loading and erosion from agriculture and silviculture run-off, pollution from stormwater and wastewater system failures, altered hydrologic regimes, land use change and urbanization, and sea-level rise (MBNEP 2019). These stressors were also identified as priority issues of concern in the Council's [2019 Planning Framework](#). To help address these challenges, the Council is investing in a large-scale program in Alabama that will work to reduce the delivery of excess nutrients and other pollutants to the Alabama watersheds. In addition, the Council is funding three planning activities that will assist in identifying, prioritizing, and monitoring the success of future restoration activities in Alabama watersheds ([Figure 14](#)).

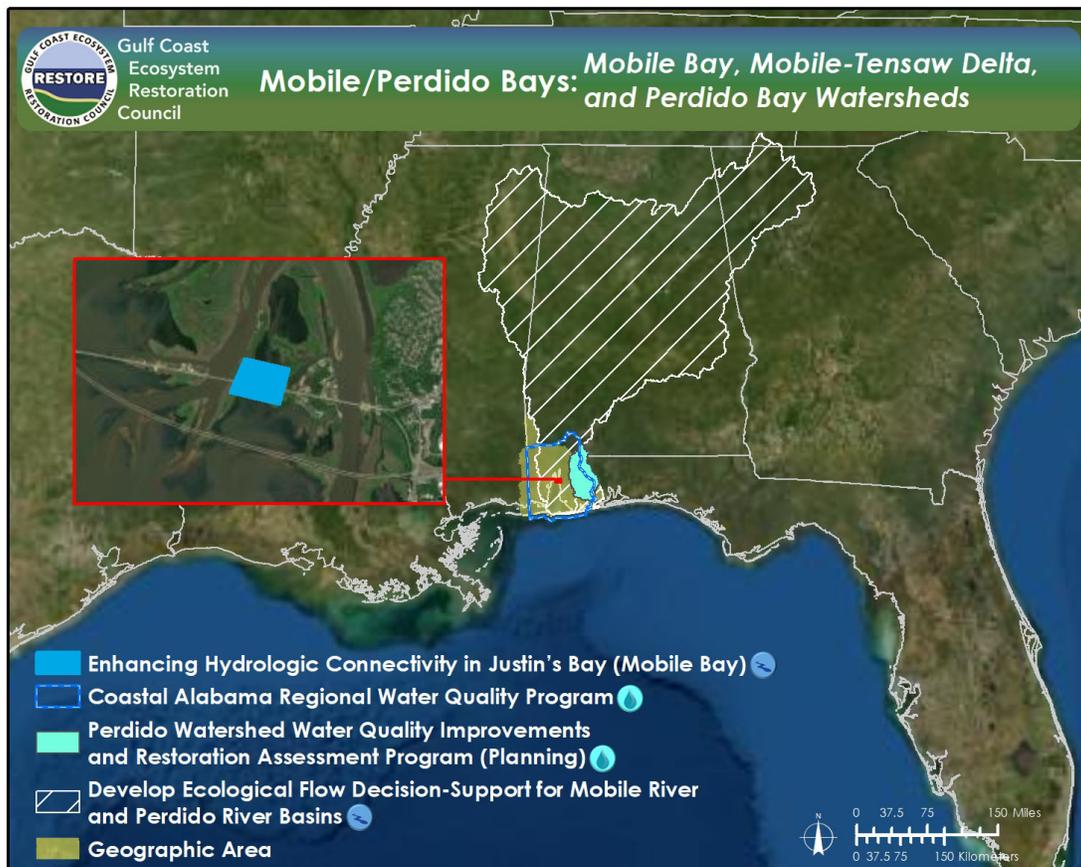


Figure 14. Map highlighting the projects and programs included in FPL 3b in the Mobile Bay, Mobile-Tensaw Delta, and Perdido Bay geographic areas. Icons next to project/program names indicate the 2019 Planning Framework approaches to be implemented by each activity.

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

The [Enhancing Hydrologic Connectivity in Justin's Bay \(Mobile Bay\) project description](#), developed and sponsored by Alabama, provides additional detail on the project, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$1M in planning funds as FPL Category 1 for the *Enhancing Hydrologic Connectivity in Justin's Bay (Mobile Bay)* project. The project will be implemented over the course of 3 years with a focus on Justin's Bay (Mobile Bay), Alabama ([Figure 14](#)). Alabama, through the Alabama Department of Conservation and Natural Resources (ADCNR), is the sponsor of this project.

This planning project will build on a previous study of how the hydrology of upper Mobile Bay is affected by the Mobile Bay Causeway. 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 occurred. Project activities aim to enhance hydrologic connectivity in Justin's Bay by conducting a planning effort that will: (1) address any data gaps remaining from the 2015 study; (2) evaluate the suggested restoration alternatives with a cost-logistics and feasibility frame of reference; and (3) move identified and prioritized restoration alternatives forward to a preliminary engineering design.

The primary Comprehensive Plan goal of this project is to restore and conserve habitat ([Figure 15](#)). In the lower section of the Mobile-Tensaw Delta, a large causeway built in the mid-to late-1920s that 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](#)). In the Mobile Bay area, hydrological modification has affected fish densities and diversity of species ([Rozas et al. 2013](#)), reduced salt- and fresh- water exchange, and altered water circulation patterns ([Martin and Valentine 2012](#)). This resulted in changes in nutrient cycling ([Goecker et al. 2009](#)), frequency of occurrence and persistence of low oxygen events, and increased incidences of exotic and invasive plant species ([Kauffman et al. 2018](#)). The degree of hydrological connectivity can be a significant driver in the movement and transfer of energy, organisms, and nutrients through a marsh system ([Goecker et al. 2009](#); [Roberts 1997](#); [Smith 1988](#)). Restoration of hydrological connectivity is critical to ensuring the long-term resilience of the coastal marsh system, especially as freshwater flow changes and weather-related storm events increase in frequency and intensity.

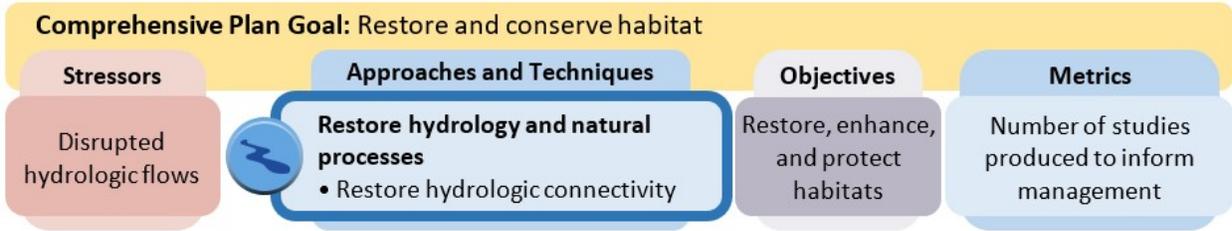


Figure 15. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track project success (fourth column). See [Figure 3](#) for more information on interpreting the above figure.

This project will fund necessary planning, data collection and analysis, and preliminary engineering and design. Robust planning is essential to the success of a large-scale project that will 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. The project builds off of previous investments from the U.S. Department of the Interior, U.S. Fish and Wildlife Service through the Coastal Impact Assistance Program (CIAP).

This project is covered by the Council’s National Environmental Policy Act Categorical Exclusion for planning and related activities.

Coastal Alabama Regional Water Quality Program

The [Coastal Alabama Regional Water Quality Program description](#), developed and sponsored by Alabama, provides additional detail on the project, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$16,130,750 in planning funds as FPL Category 1 for the *Coastal Alabama Regional Water Quality Program*. In addition, the Council has included an implementation component for potential future funding as an FPL Category 2 activity, and will reserve \$19M for this component, pending further review and a Council vote. The program will be implemented over the course of 10 years in Mobile and Baldwin counties, Alabama ([Figure 14](#)). Alabama, through the Alabama Department of Conservation and Natural Resources (ADCNR), is the sponsor of this program.

This program may include, but is not limited to: (1) planning related work (e.g., project prioritization and selection, engineering and design, and permitting and compliance activities); (2) construction of stormwater and wastewater management systems (including upgrades and repairs to existing systems); (3) low impact development/green infrastructure activities; and (4) septic to sewer conversions.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 16](#)). Water quality assessments conducted in Alabama underscore the importance of

addressing water quality impairments stemming from wastewater discharge and stormwater runoff holistically ([MBNEP 2012](#), [2014](#), [2016](#), [2018](#), [2019](#)). Water quality degradation of coastal water bodies in Alabama is both an economic (recreational and commercial) and environmental stressor. Bacterial and nutrient loading from pollutant sources results in harmful algal blooms, oyster reef closures, hypoxia development, and thus indirect consequences on coastal workforce and economies.

Water quality impacts of nutrient and bacterial pollution in coastal systems is a global phenomenon ([Bennett et al. 2001](#); [Diaz and Rosenberg 2008](#); [Lymer et al. 2018](#); [Mallin et al. 2000](#); [O'Mullan et al. 2019](#); [Vörösmarty et al. 2010](#)). A change in water quality is often associated with changes in water column conditions (i.e., hypoxia, eutrophication, and bacterial loads). The most visible water quality degradation is often associated with urban runoff, as well as discharge and sanitary sewer overflow issues, all of which are associated with wastewater management. Replacement of aging or failing stormwater and wastewater infrastructure could also help communities plan for and address anticipated impacts of climate change associated with sea level rise, changes in precipitation, etc. ([Kessler 2011](#)). This program will partner with coastal cities, counties, and/or local utilities to implement water quality improvement projects that align with the [2019 Planning Framework](#) approach to reduce excess nutrients and other pollutants to watersheds and downstream receiving waters. Further, this program will utilize 2019 Planning Framework techniques, including stormwater management, erosion and sediment control, and wastewater system improvements.

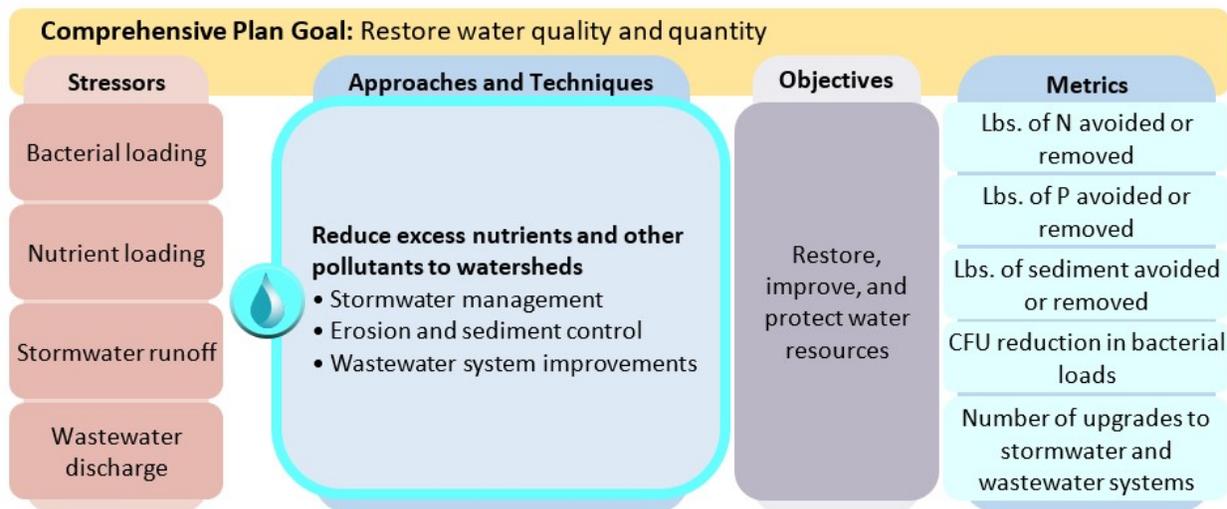


Figure 16. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

Projects implemented through this program could include a broad range of activities designed to improve downstream water quality, including, but not limited to: (1) connection of existing septic

systems to main line sewer infrastructure; (2) crushing and filling of discontinued septic systems; (3) upgrades, repairs, and replacements of sewer lines, including cure in place pipe (CIPP) technologies; (4) installation of low impact development infrastructure and/or features; (5) improvements and/or retrofits to wastewater treatment facilities, stormwater connections, manholes, and pump stations; and (6) installation of water control structures and integration of existing drainage areas with green infrastructure.

A selection process will include a project application period to inform the selection of projects. The proposals will be evaluated along with associated logistical considerations and additional evaluation criteria by a small technical review team. The review team will categorize the proposals based on potential benefit, implementation readiness and the degree of background information provided to support the described benefit and implementation potential. The resulting categorized project list will be presented to the public for comment in order to further evaluate and refine the list. ADCNR, with the support of the technical team, will further evaluate funding availability and leveraging opportunities. ADCNR, with input from the technical team, will then select a slate of projects for inclusion in the program. The slate of projects could include several alternatives given possible logistical considerations and budget changes.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. The implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the "[FPL Categories](#)" section of this document.

Develop Ecological Flow Decision-Support for Mobile River and Perdido River Basins

The [Develop Ecological Flow Decision-Support for Mobile River and Perdido River Basins project description](#), developed and sponsored by the U.S. Department of the Interior, provides additional detail on the project, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$3.4M in planning and implementation funds as FPL Category 1 for the *Develop Ecological Flow Decision-Support for Mobile River and Perdido River Basins* project. The project will be implemented over the course of 4 years, focusing on the Mobile and Perdido River basins ([Figure 14](#)). The U.S. Department of the Interior (DOI), on behalf of the U.S. Geological Survey (USGS), is the sponsor of this project.

This project will create a decision-support model to provide information on freshwater inflows to streams, bays, and wetlands of the Mobile and Perdido River Basins. The Operational Analysis and Simulation of Integrated Systems (OASIS) model will be used to simulate the routing of water through watersheds in the river basins. This will allow resource managers to evaluate questions of concern, such as the influence of water resource alteration on restoring and conserving habitat, water quality, and living coastal resources. New gaging stations will be installed to fill critical freshwater inflow data gaps and support data needs for future monitoring assessments.

The primary Comprehensive Plan goal of this project is to restore water quality and quantity (Figure 17). Maintaining the natural timing and delivery of freshwater flows from rivers to estuaries is critical for establishing appropriate estuarine circulation patterns, salinity gradients, sediment transport, and nutrient supplies that support the production of valuable coastal fisheries. (Powell et al. 2002). In the Mobile and Perdido River basins and across the Gulf region, a wide variety of land use factors have been identified that could contribute to the declining water quality of the Alabama and western Florida coast (Kennicutt 2017). The Alabama Water Agencies Working Group and other water resource managers have identified a critical need for data on inflows and models to understand how the timing and delivery of flow affects downstream ecological resources.

Consistent with the 2019 Planning Framework priority approach to develop tools for planning and evaluation and the objective to improve science-based decision-making processes, this project will provide tools (e.g., model and stream gages), data, and information that could be used by state and local decision-makers to restore more naturalized timing and delivery of freshwater in coastal river systems of Alabama, Florida, and Mississippi. Increasingly, state and local decision-makers and federal agencies are turning their attention to the restoration of flows as part of a holistic approach to restore water quality and habitat. This practice protects and replenishes living coastal and marine resources, as well as the livelihoods that depend on them. Once the model is developed and delivered to the decision-makers, it can be used well beyond the duration of the project. The project will build upon the 2015 Initial FPL Baseline Flow, Gage Analysis & On-Line Tool to Support Restoration project (RESTORE Council 2020c; Rodgers et al. 2018), which will provide foundational datasets and statistical analyses for the OASIS model development.

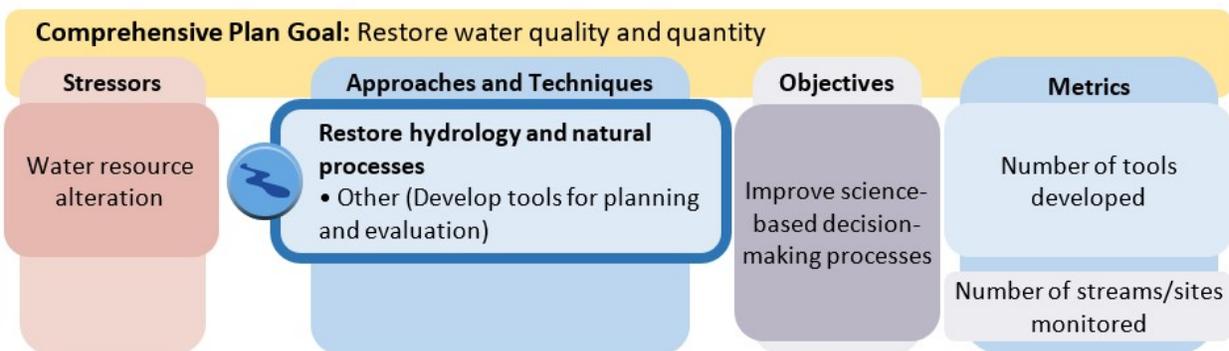


Figure 17. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track project success (fourth column). See Figure 3 for more information on interpreting the above figure.

The planning component of this program involving modeling is covered by the Council’s National Environmental Policy Act Categorical Exclusion for planning and related activities. The Council is using USGS Categorical Exclusion USGS 516 DM 9.5E, E. Operation, construction, installation, and removal of scientific equipment to support approval of implementation funds for this project.

Perdido Watershed Water Quality Improvements and Restoration Assessment Program

The [Perdido Watershed Water Quality Improvements and Restoration Assessment Program description](#), developed and sponsored by Alabama, provides additional detail on the project, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$1.5M in planning funds as FPL Category 1 for the *Perdido Watershed Water Quality Improvements and Restoration Assessment Program*. The program will be implemented over the course of 3 years within the Perdido Watershed near the Perdido River in Baldwin County, Alabama, and potentially Escambia County, Florida ([Figure 14](#)). Alabama, through the Alabama Department of Conservation and Natural Resources (ADCNR), is the sponsor of this program.

This program will coordinate and subsequently assess the potential cumulative benefits of restoration activities in the watershed in order to maximize water quality benefits that are potentially measurable outside of an individual project footprint. The program will support the coordination of the location and sequencing of selected restoration projects in the Perdido Watershed that could be expected to improve water quality and habitats. A concurrent component of the program will operate as a restoration assessment to monitor the potential collective impacts to water quality of the selected, co-located projects and other restoration projects within the watershed.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 18](#)). Stressors in the watershed include water quality issues emanating from nonpoint source pollution, including the use of onsite septic systems and runoff associated with agriculture and silviculture activities ([NWFWMD 2017](#)). Land use conversion and urbanization have contributed to the loss of habitats, including 80% of historic seagrass habitats ([Kirschenfeld et al. 2007](#)), and have impaired water quality of several water bodies. Low dissolved oxygen, turbidity and bacteria are a few of the impairments in the watershed.

A multi-member group is envisioned to coordinate identification of the location and sequencing of all or a subset of potential individual projects (and other restoration projects) in the Perdido Watershed that could be expected to improve water quality and habitats. In addition to coordination of restoration actions in the watershed, watershed-scale indicators to track restoration progress will be developed. The indicators will support the restoration assessment program to monitor the potential collective impacts to water quality and habitats of the co-located projects, and/or other funded restoration projects in the watershed. Development of a restoration assessment/restoration progress tracker through this program will enable a better understanding of the potentially collective impacts of restoration projects in the watershed or subwatershed. Outputs will potentially include the development of one or more conceptual models, short-term and long-term indicators, and a restoration progress tracker and monitoring framework. This program will support the identification of benefits at a scale larger than the individual project level.

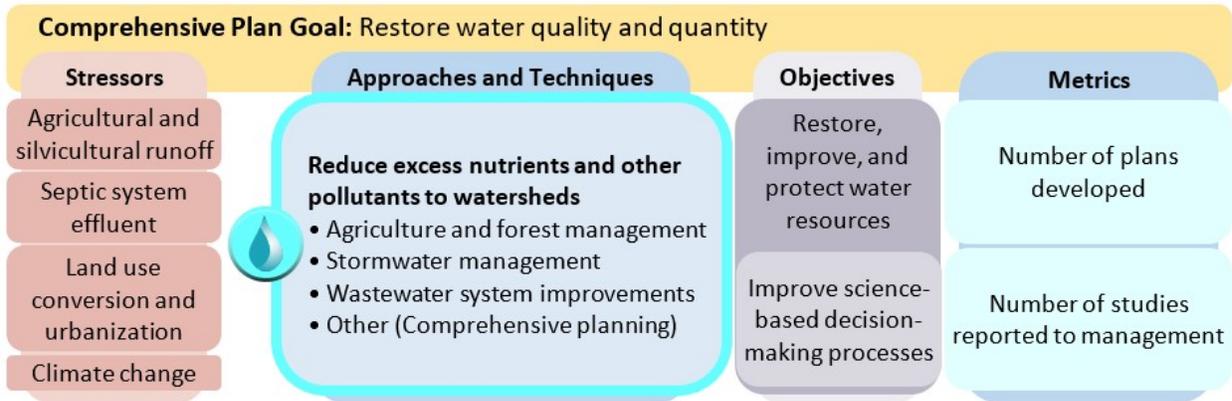


Figure 18. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

This program is covered by the Council’s National Environmental Policy Act Categorical Exclusion for planning and related activities.

Coastal Florida

The coastal habitats in the Florida geographic area, including beaches, salt marshes, mangrove forests, seagrass meadows, coral reefs, and estuaries, are important to numerous commercially and ecologically important species. Florida's natural resources are the foundation of the state's communities, economy, and way of life. These habitats have been degraded by a number of stressors, including nutrient pollution from a variety of sources, hydrologic alterations, and habitat fragmentation ([FL FWC and FL DEP 2018](#)). Furthermore, these adverse impacts to natural resources put coastal communities at risk for damages caused by extreme weather, coastal inundation, and climate change ([FDEP 2018a](#)). These stressors were also identified as priority issues of concern in the Council's [2019 Planning Framework](#). To help address these challenges, the Council is investing in several large-scale programs in Florida that will work independently and synergistically to improve water quality and quantity, restore and conserve habitat, and increase community resilience ([Figure 19](#)).



Figure 19. Map highlighting the programs included in FPL 3b in the Coastal Florida geographic area. Icons next to program names indicate the 2019 Planning Framework approaches to be implemented by each activity.

Apalachicola Regional Restoration Initiative: Strategies 2 & 3

The [Apalachicola Regional Restoration Initiative: Strategies 2 & 3 program description](#), developed and sponsored by the U.S. Department of Agriculture, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$5M in implementation funds as FPL Category 1 for the *Apalachicola Regional Restoration Initiative (ARRI): Strategies 2 & 3*. The program will be implemented over the course of 5 years in Florida counties within the Apalachicola region, including the Apalachicola National Forest ([Figure 19](#)). The U.S. Department of Agriculture (USDA), through the U.S. Forest Service, is the sponsor of this project.

This program is an extension of the Tate's Hell Strategy 1 project funded in the Council's [2015 Initial FPL](#). ARRI Strategies 2 & 3 include collaborative, landscape-level projects focused on restoring longleaf pine, coastal ecosystems, and hydrology within the Apalachicola Region of Florida. Activities include improvement to water quality and quantity, outreach to public landowners, monitoring, and targeted education to minority students. The combined ARRI Strategy 2 & 3 restoration efforts will help restore and conserve critical habitat, restore water quantity and quality, and benefit the economy throughout the Apalachicola Region.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 20](#)). Freshwater inflow into the Apalachicola River and bay have been significantly reduced in recent decades, coinciding with upstream use and storage. This has impacted biological, geological, chemical, and hydrological conditions in coastal and near-shore ecosystems. Consequently, productivity of the Apalachicola Region's commercially and culturally significant seafood industry has also been impacted ([Florida Sea Grant 2013](#)). Moreover, variations in climate are projected to cause seasonal shifts for runoff and sediment, further affecting habitat conditions which in turn negatively affect movement and breeding behaviors of wildlife ([Hovenga et al. 2016](#)). ARRI is designed to address the stressors of poor water quality, low water quantity, degraded longleaf pine and wetland habitat, failing infrastructure, insufficient wildlife and rare plant habitat, non-native invasive species, post-hurricane risks (e.g., wildland fire, forest diseases and pests), lack of sufficient monitoring, limited public outreach to private forest landowners, and minimal natural resource management education for underrepresented minorities.

ARRI Strategies 2 & 3 will maximize environmental benefits by utilizing spatial decision-support tools and products developed through Tate's Hell Strategy 1 to prioritize much needed restoration efforts. Silvicultural treatments are prioritized to maximize water yield and to improve habitat conditions for imperiled species ([Crandall et al. in preparation](#)). Hydrologic restoration is targeted to high priority watersheds identified in Tate's Hell Strategy 1 hydrologic assessment and will restore natural sheet flow and improve water quality by increasing sediment retention and nutrient assimilation. ARRI Strategies 2 & 3 leverage significant knowledge, resources, and partnerships to substantially increase the pace and scale of restoration across the Apalachicola Region. The USDA Forest Service, The Nature Conservancy (TNC), Apalachicola Regional

Stewardship Alliance (ARSA), Florida Forest Service (FFS), Florida A&M University (FAMU), University of Florida (UF), and the Center for Spatial Ecology & Restoration (CSER) at FAMU will partner to implement a range of region-wide ecological restoration activities.

Under ARRI Strategy 2, project partners will implement ecological restoration activities, including: (1) region-wide restoration for approximately 127,400 acres of longleaf habitat; (2) targeted silvicultural treatments for about 7,200 acres of dense pine forests; (3) hydrologic restoration for around 1,500 acres to reconnect freshwater habitat in high priority watersheds; (4) increased regional prescribed fire; and (5) invasive species treatments. Under ARRI Strategy 3, the Florida Forest Service will lead a partnership to advise private forest landowners in active management and restoration and educate landowners on stewardship and sustainable forest management.

The primary Comprehensive Plan goal is to restore water quality and quantity and; the primary objective is to restore, improve, and protect water resources. This program is consistent with the following priority approaches: (1) Protect and Conserve Coastal, Estuarine, and Riparian Habitats; (2) Restore hydrology and natural processes; and (3) Reduce excess nutrients and other pollutants to watersheds.



Figure 20. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). See [Figure 3](#) for more information on interpreting the above figure.

USDA has advised the Council that this program is covered by the USDA Categorical Exclusions (CEs). The Council is using these CEs and the associated environmental compliance documentation to support the funding approval of this program, consistent with Section 4(d)(4) of the Council’s National Environmental Policy Act (NEPA) Procedures, which

enables the Council to use member CEs, where appropriate. In making this decision, the Council considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, tribal interests and historic properties, where applicable.

Florida Gulf Coast Resiliency Program

The [Florida Gulf Coast Resiliency Program description](#), developed and sponsored by Florida, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$5.6M in planning funds, as FPL Category 1 for the Florida Gulf Coast Resiliency Program. In addition, the Council has included the implementation component for potential future funding as an FPL Category 2 activity, and will reserve \$8.4M for this component, pending further review and a Council vote. The program will be implemented over 10 years in Florida coastlines and estuaries along the Gulf of Mexico ([Figure 19](#)). Florida, through the Florida Department of Environmental Protection (FDEP), is the sponsor of this program.

This program will include three types of project activities: (1) vulnerability assessments to identify strategies to improve resiliency; (2) living shorelines to protect against erosion and reduce wave energy; and (3) coastal and submerged lands management and acquisition activities to protect habitats that enhance resiliency. The FDEP will partner with the Florida Forever (FF) Program to identify acquisitions, and with the Office of Resilience and Coastal Protection on vulnerability assessments and submerged lands management activities.

The primary Comprehensive Plan goal of this program is to enhance community resilience ([Figure 21](#)). Comprehensive resource management and planning efforts, such as FF, Florida Gulf Environmental Benefit Fund Restoration Strategy, Basin Management Action Plans, Aquatic Preserve Management Plans, and others, have identified stressors and threats to Florida's natural resources, including habitat loss and fragmentation, and the effects of climate change such as extreme weather and sea level rise.

This program will directly address habitat loss and fragmentation through acquisitions and land management protections, address the effects of climate change by constructing living shorelines to reduce wave energy, and protect coastal lands to enhance resiliency and sustainability. Identifying strategies to improve coastal resiliency will help ensure Florida's coastal communities are able to adapt to the effects of climate change by conserving Florida's natural resources, reducing wave energy, protecting against storm surge, and providing opportunities for species and habitat migration.

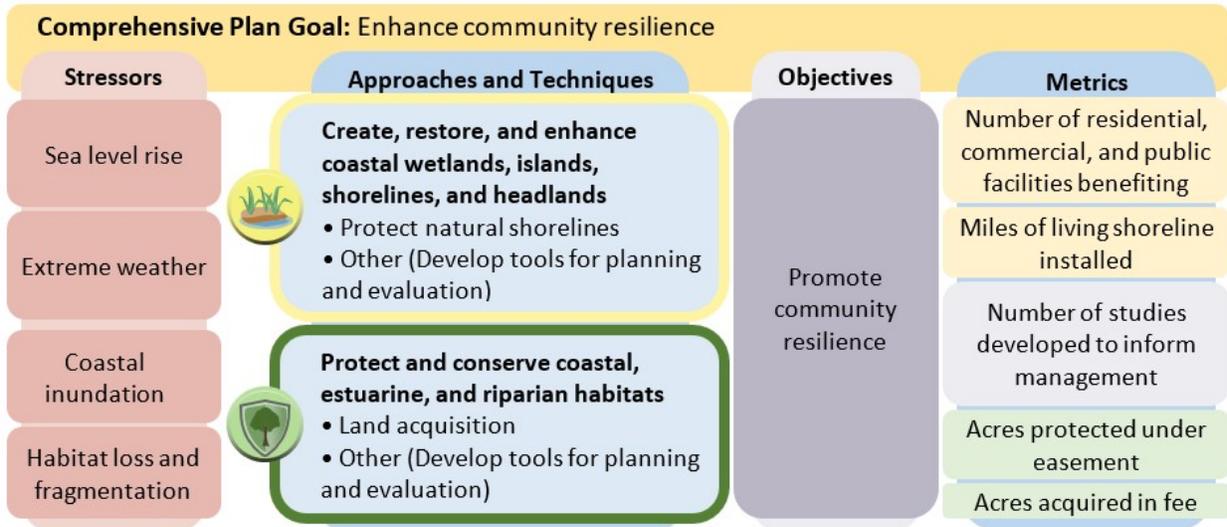


Figure 21. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

Program activities will be selected from proposals submitted by the public. Florida anticipates one request for proposals for all three project types. FDEP will utilize an approach similar to the Deepwater Horizon natural resource damage assessment project portals and issue a public notice to solicit proposals. The notice will clearly describe the goal and objectives of the program and the types of activities that will be considered.

In selecting program activities from submitted project proposals, FDEP will screen and evaluate each proposal to ensure it meets the goal and objective of the program. If a proposal meets the screening criteria (described in the program proposal), FDEP will evaluate the proposal further according to the evaluation criteria. FDEP will then select program activities based on the extent to which the proposals meet the evaluation criteria and those that are likely to benefit coastal community resilience most cost-effectively. Proposals that meet all of the initial screening and evaluation criteria will be further evaluated within the framework outlined in the project description for each of the three project types included in this program. Ultimately, the number and type of projects selected for implementation will depend on project proposals, and will be scaled to the program budget.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. Implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the "[FPL Categories](#)" section of this document.

Florida Gulf Coast Tributaries Hydrologic Restoration Program

The [Florida Gulf Coast Tributaries Hydrologic Restoration Program \(THRP\) description](#), developed and sponsored by Florida, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$3,437,500 in planning funds as FPL Category 1 for the *Florida Gulf Coast Tributaries Hydrologic Restoration Program (THRP)*. In addition, the Council has included the implementation component for potential future funding as an FPL Category 2 activity, and will reserve \$10,312,500 for this component, pending further review and a Council vote. The program will be implemented over 10 years in Florida watersheds that drain to the Gulf of Mexico ([Figure 19](#)). Florida, through the Florida Department of Environmental Protection (FDEP), is the sponsor of this program.

This program will restore water quality and quantity throughout the Florida Gulf Coast by underwriting a comprehensive suite of linked, high-priority hydrologic improvement projects. The THRP will focus on addressing the stressors described and identified in Minimum Flow Levels (MFLs), Total Maximum Daily Loads (TMDLs), Basin Management Action Plans (BMAPs), Surface Water Improvement and Management plans (SWIM), and other approved restoration plans to achieve the Council's goal of restoring water quality and quantity and Florida's desired outcome of restoring hydrologic and salinity conditions of Gulf Coast wetlands and estuaries.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 22](#)). The THRP will emphasize the use of priority techniques to reestablish flows through hydrologic impediments and focus on allowing natural sheet flows across wetland areas ([NRCS 2008](#)). Efforts to restore hydrology and natural salinity regimes may include: (1) plugging canals; (2) restoring the natural dimensions of tidal passes and inlets; (3) installing or enlarging culverts, gates, low water crossings and other structures to reestablish natural flows; and (4) strategic use of impoundments to capture and store flood waters to be released during droughts, etc.

Coastal habitats will benefit from THRP projects due to the restoration of natural hydrologic and salinity regimes. The THRP is also expected to: (1) improve water quality; (2) increase benthic communities, oysters, seagrass, and fish populations; and (3) reduce populations of invasive species. THRP funding will be intentionally directed to projects that provide cumulative benefits to the Florida Gulf Coast and link environmental benefits between selected and other restoration projects in a watershed or region. Linking restoration projects will contribute to large-scale hydrologic improvements.

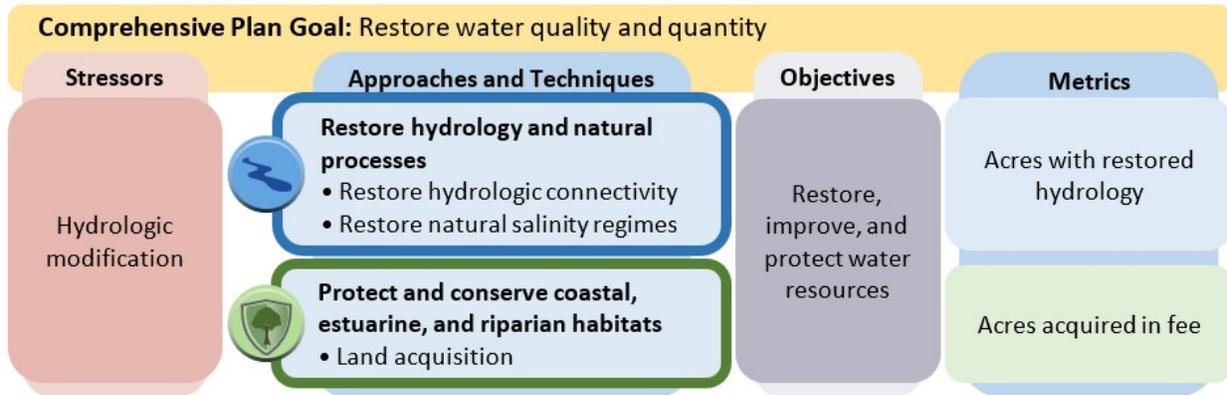


Figure 22. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

The FDEP will use a screening process based on approved selection criteria to fund projects under the THRP. Priority will be given to large-scale hydrologic restoration projects that have been previously identified in adopted MFL recovery or prevention strategies, SWIM plans, and the Florida State Expenditure Plan.

THRP selection criteria will focus on restoring the critical drivers and functions of the hydrologic regime. Following these steps will promote recovery of healthy ecosystems through flow regime dynamics, balancing sediment and organic matter inputs, nutrient cycling, and hyporheic exchanges, as well as promoting low impact development practices, conservation, and public-private partnerships that combine habitat creation and removal of human constraints to achieve ecological aims ([Beechie et al. 2010](#)). The use of effective selection criteria is intended to lead to high-quality projects, enabling the THRP to significantly improve hydrologic connectivity of Gulf Coast watersheds and restore natural resources, ecosystems, fisheries, marine and wildlife habitats, and coastal wetlands. Success of this program will translate into restored and enhanced ecosystem resilience, sustainability, and natural defenses.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. Implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the "[FPL Categories](#)" section of this document.

Florida Water Quality Improvement Program

The [Florida Water Quality Improvement Program \(WQIP\) description](#), developed and sponsored by Florida, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$6.75M in planning funds as FPL Category 1 for the *Florida Water Quality Improvement Program (WQIP)*. In addition, the Council has included the implementation component for potential future funding as an FPL Category 2 activity, and will reserve \$20.25M for this component, pending further review and a Council vote. The program will be implemented over 10 years in Florida watersheds that drain to the Gulf of Mexico ([Figure 19](#)). Florida, through the Florida Department of Environmental Protection (FDEP), is the sponsor of this program.

This program will restore water quality and quantity throughout the Florida Gulf Coast by underwriting a suite of linked, high-priority water quality improvement projects, which may include stormwater treatment, wastewater reuse, septic tank abatement, sediment reduction, and land acquisition. In Florida, the protection and restoration of water resources and other natural resources is guided by comprehensive planning efforts, including: (1) Surface Water Improvement and Management (SWIM) plans; (2) a Nonpoint Source management program; (3) the Florida Gulf Environmental Benefit Fund Restoration Strategy, which is an overarching framework for restoring and conserving the natural resources of Florida's Gulf Coast ([FFWCC and FDEP 2018](#)); and (4) the Basin Management Action Plan process. The WQIP activities will result in environmental benefits such as: (1) fewer algal blooms, fish kills, beach closures, and fish and shellfish consumption restrictions; (2) healthier seagrass as well as other submerged aquatic vegetation and wildlife habitat and (3) improved recreational opportunities and experiences.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 23](#)). This program will address stressors and threats such as nutrient pollution from a variety of sources, such as: (1) the millions of often densely-clustered septic systems; (2) urban and agricultural fertilizers; (3) stormwater runoff; and (4) aging and inadequate wastewater and stormwater infrastructure ([Badruzzman et al. 2012](#); [Carey et al. 2012](#); [Nagy et al. 2012](#)). WQIP funding will target projects that provide cumulative benefits to the Florida Gulf Coast, linking with other restoration projects in a watershed or region to promote large-scale water quality improvements.

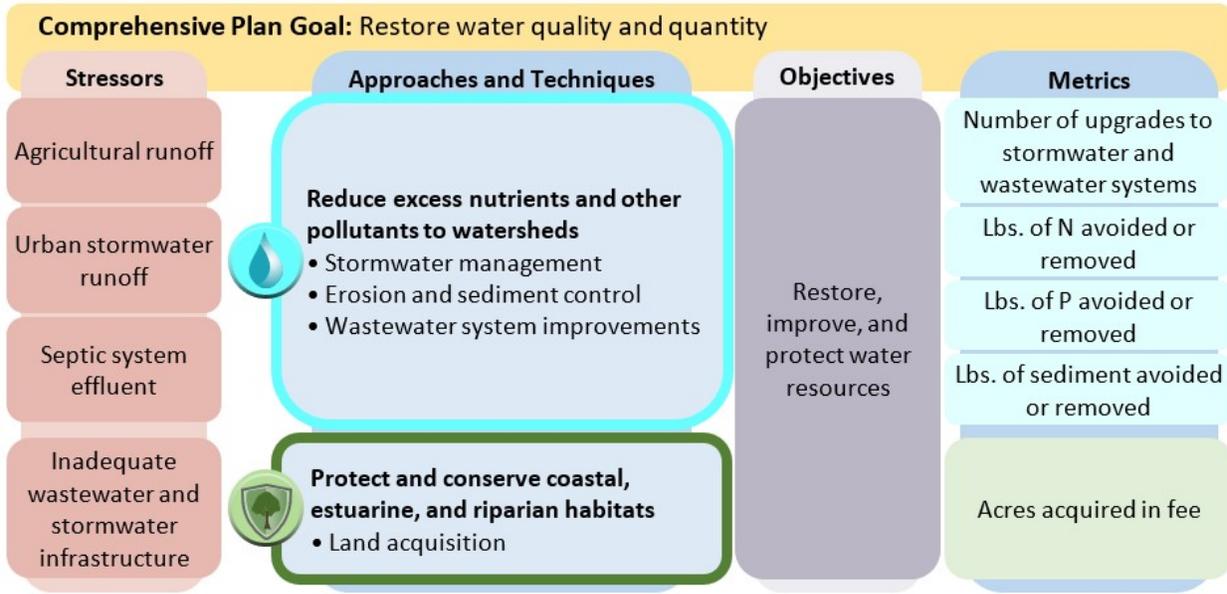


Figure 23. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

FDEP will use a screening process based on approved selection criteria to fund projects under the WQIP. The WQIP will focus on stormwater treatment, wastewater reuse, septic tank abatement, sediment reduction, and land acquisition practices targeted at impaired water bodies (e.g., CWA 303(d) list or approved Total Maximum Daily Loads [TMDLs]). Infrastructure projects to be funded under the WQIP are intended to address legacy pollution from existing causes, which are typically the result of inadequate wastewater treatment (overreliance on septic systems), ineffective or lack of stormwater treatment, and other nonpoint sources of runoff. WQIP is not intended to support new growth or development.

The use of effective selection criteria is intended to lead to high-quality projects, which will enable the WQIP to significantly reduce pollutants to priority waters. Project locations with pollutant reduction efforts can be evaluated using the same water quality modeling used in TMDL development, ensuring improved water quality at these locations will also impact the overall system ([FDEP 2018b](#)). Water quality modeling will provide the data necessary to address project resilience to increased rainfall and sea level rise. Water quality improvement estimates for stormwater and wastewater project techniques (e.g., wastewater system improvements) will be derived from site-specific information and performance standards, where available, and peer-reviewed sources summarized in the Statewide Best Management Practice (BMP) Efficiencies for Nonpoint Source Management of Surface Waters ([FDEP 2018c](#)). By establishing estimates of water quality improvements through quantitative means (e.g., nutrient reduction in lbs.), individual projects can be evaluated together for combined effects and comprehensive restoration.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. The implementation component is in FPL Category 2. Implementation activities in Category 2 may be moved into Category 1 through the formal Council review and amendment process as described in the "[FPL Categories](#)" section of this document.

Florida Strategic Gulf Coast Land Acquisition Program

The [Florida Strategic Gulf Coast Land Acquisition Program description](#), developed and sponsored by Florida, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$14M in planning and implementation funds as FPL Category 1 for the *Florida Strategic Gulf Coast Land Acquisition Program*. The program will be implemented over the course of 10 years in Florida watersheds that drain to the Gulf of Mexico ([Figure 19](#)). Florida, through the Florida Department of Environmental Protection (FDEP), is the sponsor of this program.

This program will include a suite of linked conservation activities that will increase conserved and protected state owned or managed lands by 10,000 to 20,000 acres. Program activities include implementation of land acquisitions, partnering with the existing Florida Forever Program (FF), Florida's premier conservation and recreation lands acquisition program.

The primary Comprehensive Plan goal of this program is to restore and conserve habitat ([Figure 24](#)). Comprehensive resource management and planning efforts, such as FF, Florida Gulf Environmental Benefit Fund Restoration Strategy, Basin Management Action Plans, and other efforts have identified stressors and threats to Florida's natural resources, including habitat loss, fragmentation, hydrologic alterations, climate change, and sea level rise. This program will directly address habitat fragmentation and climate change stressors by acquiring and protecting critical natural areas, large functional landscapes, large hydrologic systems, imperiled natural communities, wildlife corridors, and lands. Collectively, these activities will strengthen Florida's land, water, and coastal resource resiliency, promote carbon sequestration, and mitigate sea level rise effects. This program is consistent with the Protect and Conserve Coastal, Estuarine, and Riparian Habitats priority approach.

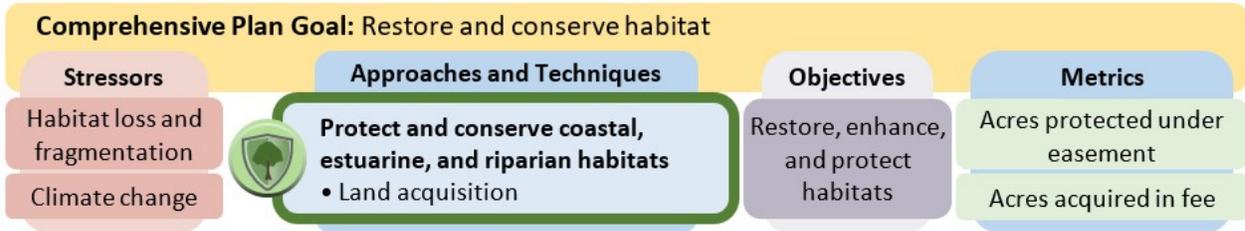


Figure 24. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

To select acquisitions under this program, Florida will utilize the land acquisition priority list produced through FF. The list is updated and adopted annually by the Acquisition and Restoration Council (ARC), a 10-member group including scientific representatives from four State agencies, four appointees of the Governor, one appointee by the Fish and Wildlife Conservation Commission, and one appointee by the Commissioner of the Agriculture and Consumer Services. Members of the ARC have backgrounds in scientific disciplines of land, water, environmental sciences, wildlife management, forestry, and outdoor recreation ([FF 2019a](#)). The ARC utilizes a science-based evaluation process for decision-making when developing the priority list for acquisition.

Florida will identify the priority parcels in the Critical Natural Lands and Climate Change Lands categories, or other parcels with similar attributes, that have not already been acquired and determine which are in watersheds that drain into the Gulf of Mexico. Priority will be given to those parcels that leverage other funding sources or those that can be acquired for less than the appraised value. Once selected, FDEP will follow the land acquisition procedures outlined in the Florida Statutes, Chapter 259, Land Acquisitions for Conservation or Recreation. FDEP's Division of State Lands and its acquisition partners will contract an appraisal of land from an independent private sector appraiser to estimate market value, negotiate with owners to buy the land, conduct any required due diligence, such as site environmental assessments, and complete the acquisition on behalf of the State. Lands acquired will be titled to the State and protected in perpetuity.

The planning component of this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for planning and related activities. USDA has advised the Council that the implementation component of this program is covered by a USDA Categorical Exclusion (CE). The Council is using this CE and the associated environmental compliance documentation to support the funding approval of this program component, consistent with Section 4(d)(4) of the Council's National Environmental Policy Act (NEPA) Procedures, which enables the Council to use member CEs, where appropriate. In making this decision, the Council considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, tribal interests and historic properties, where applicable.

Gulfwide

In addition to focusing on particular geographic areas, the Council's [2019 Planning Framework](#) acknowledged that Gulfwide investments are important to support holistic ecosystem restoration and lay the foundation for future success. In developing project ideas, the Council considered how mutual priorities across multiple geographic areas may be combined to create "Gulfwide" programs. To that end, the Council is investing in four programs that span across multiple states to improve water quality and quantity in coastal, estuarine, and riparian habitats, to restore and conserve habitat, and to enhance community resilience by promoting natural resource stewardship and environmental education ([Figure 25](#)).



Figure 25. Map highlighting the programs included in FPL 3b in the Gulfwide geographic area. Icons next to program names indicate the 2019 Planning Framework approaches to be implemented by each activity.

Gulf Coast Conservation Reserve Program

The [Gulf Coast Conservation Reserve Program description](#), developed and sponsored by the U.S. Department of Agriculture, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$3.1M in planning and implementation funds as FPL Category 1 for the *Gulf Coast Conservation Reserve Program (GCCRP)*. The program will be implemented over the course of 4 years in coastal Florida, Alabama, and Mississippi ([Figure 25](#)). The U.S. Department of Agriculture (USDA), through the Natural Resources Conservation Service (NRCS), is the sponsor of this program.

This program was established through the Initial FPL in December 2015. USDA is currently implementing the program throughout the Gulf for the purpose of protecting and restoring critical wildlife habitat and improving water quality through the development of wildlife habitat, conservation, and forest management plans. FPL 3b will provide additional funds for work in Florida, Alabama, and Mississippi. Conservation practices and restoration activities will be implemented to address the resource concerns identified in the planning phase. GCCRP activities will allow for conservation planning on private lands including, but not limited to, ecosystem restoration by conducting soil and water conservation for the benefit of water quality to priority bays and estuaries.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 26](#)). Nutrient pollution adversely impacts water quality and poses a significant threat to localized watersheds across the entire Gulf Coast. Fertilizers and manures are used to supplement the natural supplies for optimum crop growth. When nutrients are used correctly, they are very beneficial, but when they are used in the wrong place at the wrong time, they become pollutants. Both groundwater and surface water are very vulnerable to pollution. Excessive nutrient enrichment, or eutrophication, of Gulf Coast estuaries and their watersheds is a chronic threat that can lead to hypoxia, harmful algal blooms, habitat losses, and fish kills.

This program will serve to assist willing private landowners with implementing conservation measures to improve water and wildlife habitat conditions. The selected measures will be conducted with the landowner's conservation goals in mind, enabling greater ownership in conservation and management activities that affect water quality and wildlife habitat conditions within the Gulf coast region. Outcomes will include direct improvements in water quality, wetland and upland wildlife habitat, and forest health.



Figure 26. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

The planning component of this program will continue work that was already initiated through this program from [2015 Initial FPL](#) investments. Water quality and natural resource concerns on private property will be identified and prioritized on individual land units. Once done, conservation plans will be developed to address those concerns on approximately 5,000 acres. The land will be subject to the NRCS conservation practice standards outlined in the conservation, forest management, and wildlife habitat plans developed in the planning phase of this program. Conservation planning and environmental due diligence efforts will be completed during the initial phase of the program. After the planning, engineering and compliance, USDA will enter into contracts with landowners to implement conservation practices on their property. Contracts will serve as an agreement to implement the conservation practices outlined in the conservation plan according to conservation practice standards and specifications (including any required property access agreement and activities related to project monitoring).

USDA has advised the Council that this program is covered by the USDA Categorical Exclusions (CEs). The Council is using these CEs and the associated environmental compliance documentation to support the funding approval of this program, consistent with Section 4(d)(4) of the Council’s National Environmental Policy Act (NEPA) Procedures, which enables the Council to use member CEs, where appropriate. In making this decision, the Council considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, tribal interests and historic properties, where applicable.

Enhancing Gulf Waters through Forested Watershed Restoration

The [Enhancing Gulf Waters through Forested Watershed Restoration description](#), developed and sponsored by the U.S. Department of Agriculture, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$23M in planning and implementation funds as FPL Category 1 for the *Enhancing Gulf Waters through Forested Watershed Restoration* program. The program will be implemented over the course of 7 years in priority watersheds in Mississippi, Alabama, and Florida as designated by State agencies ([Figure 25](#)). The U.S. Department of Agriculture (USDA) is the sponsor of this program.

This program will include activities to restore private and public forests by providing technical and financial assistance to private landowners and communities in watersheds where forest resources are instrumental to the health of the Gulf of Mexico. A coordinated, cross-boundary effort will be led by State Forestry Agencies in Alabama, Florida, and Mississippi; leveraging the funding and activities of other organizations that are well established. Activities include social marketing techniques to effectively reach landowners, implementation of best management practices (e.g., establishing forests, prescribed fire, and controlling invasive exotic species), and use of science-based decision-support tools to inform forest restoration investments and quantify outcomes.

The primary Comprehensive Plan goal of this program is to restore water quality and quantity ([Figure 27](#)). The stressors addressed by this program include water quality and quantity issues related to the conversion of the Gulf Region's forests to agricultural and urban land uses and the need for more active forest management. Indeed, among the major challenges in the 21st century will be to manage forests and water resources under development pressures and other environmental factors ([NRC 2008](#); [Sun and Vose 2016](#); [Vose 2019](#); [Vose et al. 2011](#); [Vose, Martin and Barten 2016](#)). Changes to more intensive land use increase point and nonpoint pollution, reduce aquifer recharge, accelerate stormwater release, and increase the amount of runoff. In addition, forest fragmentation negatively impacts wildlife habitat, limits forest management options, and reduces economic viability of forest ownership and reduces community resilience.

Establishing this large-scale program will substantially enhance and maintain water quality and quantity by managing and restoring forested ecosystems in a three-state region. A healthy Gulf stems from healthy estuaries, healthy estuaries depend on healthy watersheds, healthy watersheds flow from healthy forests, and healthy forests require active landowners and managers. The program will directly impact approximately 15,000 forested acres that are vital to the health of the Gulf Region. The work is anticipated to increase landowner understanding of the benefits of forest management and its importance to Gulf waters. In addition, it will improve forest health and productivity, strengthen the viability of forest-dependent community resilience, and hence, the likelihood of keeping forested lands on the landscape. Providing landowners with financial and technical assistance helps them effectively and efficiently manage their forest

resource, making it less attractive to sell or convert the land to other uses. They have more options, and those options help avoid conversion by making ownership more economically and environmentally sustainable.

A forested watershed program that approaches the work at a landscape scale must consider restoration of public land in the Gulf Region to achieve multiple Comprehensive Plan goals and objectives. Restoration of public forests, such as those that are managed by State Forest Agencies (e.g., State Forests and Section 16 school trust forests), will focus on treatments that offer long-term improvements to water quality and quantity, and wildlife habitat.



Figure 27. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

USDA will apply the following decision factors for project selection: (1) contribution to the RESTORE Council’s Comprehensive Plan and 2019 Planning Framework ; (2) consistency with the goals and objectives of each state’s Forest Action Plan, state and local watershed management plans, state Wildlife Action Plans, and other plans as appropriate; and (3) geography – sites located within the designated priority watersheds.

Technical and financial assistance will be provided to landowners and communities, factoring in readiness and anticipated outcomes. Applications for financial assistance will be ranked using criteria that aligns with the Council’s 2019 Planning Framework, such as: (1) proximity to a stream, lake, or wetland; (2) connectivity to protected land; (3) impacts to water quality; (4) impacts to water quantity; and (5) wildlife habitat variables.

Complementary to the work of state forestry agencies, a NFWF-led competitive grant fund is envisioned that offers an additional path for attracting partners and investors, including conservation organizations, universities, local governments and others beyond the core partners whose expertise and resources are needed to expand the impact. Such a fund may create leverage beyond that which is currently identified, increase potential for innovative solutions, and multiply positive outcomes of forest restoration for the Gulf Region.

USDA has advised the Council that this program is covered by the USDA Categorical Exclusions (CEs). The Council is using these CEs and the associated environmental compliance documentation to support the funding approval of this program, consistent with Section 4(d)(4) of the Council's National Environmental Policy Act (NEPA) Procedures, which enables the Council to use member CEs, where appropriate. In making this decision, the Council considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, tribal interests and historic properties, where applicable.

Gulf of Mexico Coast Conservation Corps Program

The [Gulf of Mexico Coast Conservation Corps \(GulfCorps\) Program description](#), developed and sponsored by the U.S. Department of Commerce - National Oceanic and Atmospheric Administration, provides additional detail on the program, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$11,971,250 in implementation funds as FPL Category 1 for the *Gulf of Mexico Coast Conservation Corps (GulfCorps) Program*. The program will be implemented over the course of 4 years within the major coastal estuaries and habitats in Florida, Alabama, Mississippi, Louisiana, and Texas ([Figure 25](#)). The U.S. Department of Commerce, through the National Oceanic and Atmospheric Administration (NOAA), is the sponsor of this program.

Building off work funded under the Council's [2015 Initial FPL](#), GulfCorps organizations in each Gulf state will recruit, train, employ, and help to inspire hundreds of young adults to produce tangible habitat restoration benefits and to become the Gulf of Mexico's future restoration workforce. GulfCorps will continue to collaborate with state, federal, and local agencies, and non-profit organizations to manage natural resources and implement restoration, conservation and resilience projects. Based on project input from RESTORE Council members and local experts, the GulfCorps will implement habitat restoration, conservation and monitoring activities in a wide range of Gulf of Mexico habitats including marshes, prairies, forests, oyster reefs and shorelines. The GulfCorps crews will also facilitate public access to Gulf habitats by building and maintaining boardwalks and trails.

The primary Comprehensive Plan goal of this program is to restore and conserve habitat ([Figure 28](#)). The Gulf is subject to a wide variety of natural stressors such as drought, fluctuating temperatures, hurricanes, land subsidence, sea-level rise, and saltwater intrusion, as well as human stressors such as: (1) river channelization causing alteration of important wetland flooding and sedimentation regimes; (2) residential development; (3) industrial activities

including oil and gas extraction contributing to land loss; (4) agricultural and wastewater discharges; (5) trawling impacts to the sea floor; and (6) invasive species.

The GulfCorps Program facilitates the restoration, conservation and stewardship of several of the highest priority habitats and watersheds across all 5 Gulf states. The program works with resource experts in each state to identify and prioritize the most critical and high-value restoration sites, and the conservation and restoration practices that need to be applied to each site over time. By taking a multi-habitat approach, the GulfCorps Program can address the primary goal to restore and conserve habitat across the Gulf of Mexico. GulfCorps provides a labor pool to help implement project partners' most important conservation, restoration and resilience efforts. The initial program's goal aligned with the Comprehensive Plan to restore and conserve habitat, and its objectives were met through the restoration, conservation and protection of habitat in all 5 Gulf states. The continuation of GulfCorps shares the same priority goal and objective while adding the secondary goal of enhancing community resilience by promoting natural resource stewardship, environmental education, and development of job skills.

Program activities will contribute to the restoration of approximately 6,400 acres of coastal habitat and provide employment opportunities for an estimated 240 young people across the Gulf of Mexico region. The program will provide approximately 500,000 hours of labor for priority conservation projects. The program anticipates (1) treating over 800 acres impacted by invasive species; (2) enhancing 3,200 acres of wetlands, shorelines, and/or marsh; (3) enhancing over 2,400 acres of coastal uplands and forest; and (4) monitoring up to 800 acres of restored habitat within priority Gulf coast watersheds. To ensure the effectiveness of these restoration activities the GulfCorps program is using the best available science, an effective adaptive management framework, and a robust monitoring framework. GulfCorps has demonstrated that all of this is possible through employing local young people from the communities where the work is located.

GulfCorps projects have been guided by state-appointed RESTORE Act Representatives in Texas, Louisiana, Mississippi, Alabama and Florida. Coordination between GulfCorps staff and these representatives occurs at least semi-annually to discuss progress of the GulfCorps crews and to coordinate on project ideas and project partners for the crews in their state. GulfCorps staff coordinate further with the staff of the various agencies and nonprofits on-the-ground to develop detailed scopes of work and schedules and to determine training requirements and tool selection. These scopes of work are used to contract with the crews from each state.

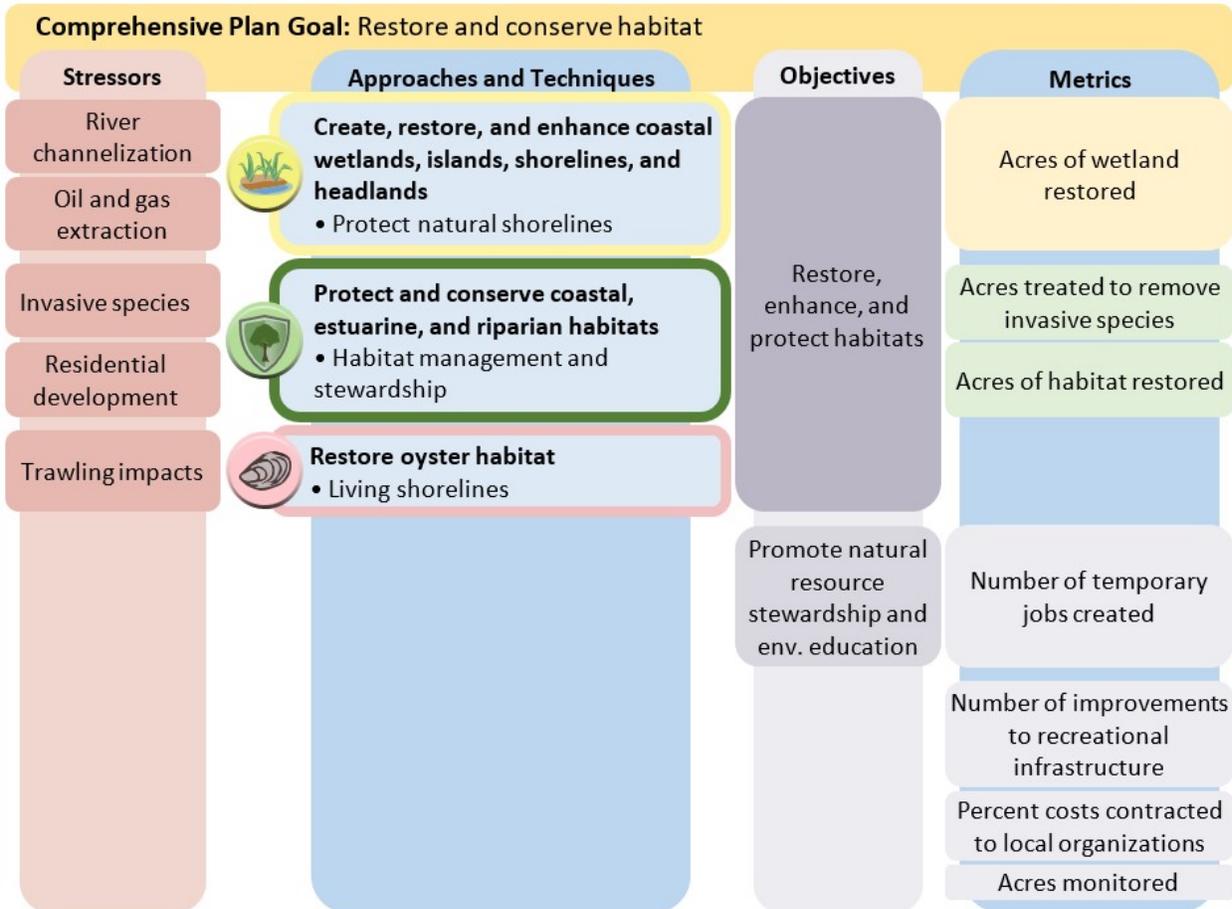


Figure 28. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

NOAA Fisheries will act as the fiscal sponsor, environmental compliance lead, project advisor, and liaison to the RESTORE Council for the GulfCorps Program. NOAA will partner with The Nature Conservancy, the implementation lead of the Program, who will manage the conservation and project planning, monitoring, subawards, contracts and overall operations components of GulfCorps. The Student Conservation Association will lead the development and implementation of annual orientations and will manage logistics for the region-wide, technical training of the conservation corps. The Corps Network will implement a professional development program intended to help the conservation corps prepare GulfCorps members and leaders for careers in conservation and restoration while actively assisting the placement of participants with opportunities that lead to those positions. The Forest Stewards Guild will be the technical training provider for the federally regulated certifications required for chainsaw operation and prescribed fire qualifications.

The program will continue working with over 60 distinct project partners from varying departments or offices within each agency and non-profit organizations across all five Gulf states. The program model builds on years of capacity building, planning, partnerships and collaboration between program partners, project partners and Conservation Corps partners (Corps) in all five Gulf states. The six Corps organizations that operate the 11 GulfCorps crews have helped to shape the program's goals through the diversity of audiences that they serve.

Individuals trained under the program will help execute restoration projects that are funded for implementation by other sources. Council-Selected Restoration Component funding will support education and training of GulfCorps members, including hands-on work on Gulf conservation and restoration activities. GulfCorps members will work only on activities that are in compliance with all applicable environmental laws and regulations. Council approval of implementation funding for this training activity will not involve or lead directly to ground-disturbing activities that may have any independent significant effects on the environment individually or cumulatively. Accordingly, the implementation of training under this program is covered by the Council's National Environmental Policy Act Categorical Exclusion for training, technical, and other related activities (Section 4(d)(1)(vi) of the Council's NEPA Procedures).

Tribal Youth Coastal Restoration Program

The [Tribal Youth Coastal Restoration Program description](#), developed and sponsored by the U.S. Department of the Interior, provides additional detail on the project, including information regarding compliance with the RESTORE Act, background, methods, risk and uncertainties, and budget.

The Council has approved \$927K in planning and implementation funds as FPL Category 1 for the *Tribal Youth Coastal Restoration Program*. The program will be implemented over the course of 3 years in coastal Florida, Alabama, Mississippi, and Louisiana ([Figure 25](#)). The U.S. Department of the Interior (DOI), on behalf of the Bureau of Indian Affairs (BIA), is the sponsor of this program.

This program will continue the restoration work begun under the Council's [2015 Initial FPL](#) of the following Federally recognized tribes: (1) Chitimacha Tribe; (2) Mississippi Band of Choctaw Indians; (3) Poarch Band of Creek Indians; (4) Seminole Tribe of Florida; and (5) Miccosukee Indian Tribe, and will add the Coushatta Tribe of Louisiana. Activities will take place on tribal lands in Florida, Alabama, Mississippi, and Louisiana ([Figure 25](#)). Tribal lands identified for this program include those on the Gulf coast as well as further inland within watersheds that drain into the Gulf.

Activities have been selected and designed to primarily benefit the Gulf coast region through direct restoration, and training that will educate youth on the importance of these natural habitats, as well as the development of skills to restore and conserve coastal habitats

throughout the region.⁴ Investing in programs that provide work opportunities for young people has economic and physical benefits while also enhancing the environmental vitality of the area’s natural resources directly tied to the Gulf.

The initial work will support the restoration of 995 acres while training 239 students. Tribes will continue to create projects to protect natural resources and the environment, and maintain a healthy ecosystem, while learning cultural values. These training projects should engage a similar number of students as previous initiatives to restore habitat on tribal lands.

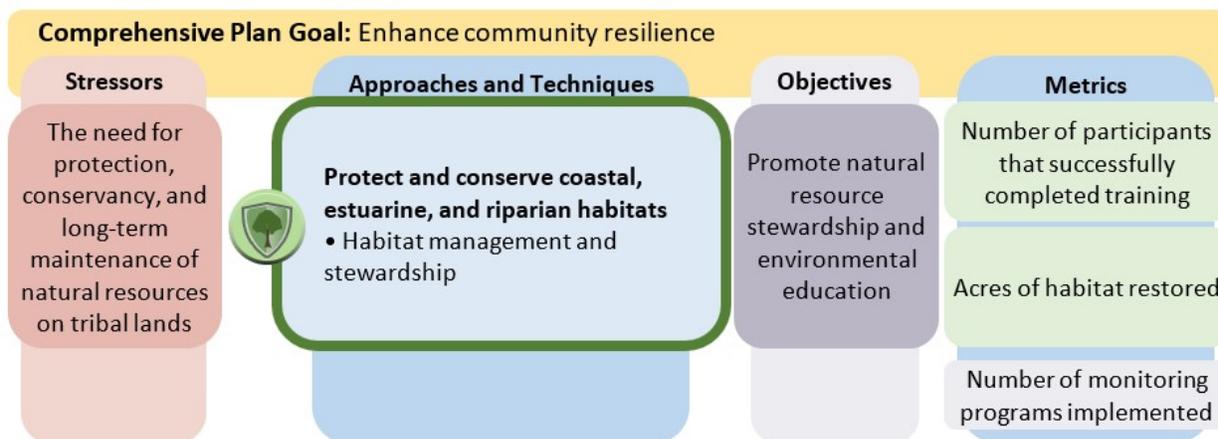


Figure 29. This figure shows the Comprehensive Plan goal of this activity (top row), how the 2019 Planning Framework approaches and techniques employed by this activity (second column) will address stressors (first column) to support Comprehensive Plan objectives (third column), and the corresponding metrics that may be used to track program or implemented project success (fourth column). As this program is implemented, metrics may be added, removed, or replaced, as appropriate, as specific projects under the program are identified. See [Figure 3](#) for more information on interpreting the above figure.

The primary Comprehensive Plan goal of this program is to enhance community resilience ([Figure 29](#)). Investing in programs that enhance the environmental vitality of the area’s natural resources directly tied to the Gulf while also providing work opportunities for young people provides both economic and physical benefits. Each tribe has selected projects to implement that are relevant to environmental issues on their lands and consistent with the overarching goals and objectives of this program. Through this program, tribal youth will undertake projects to learn to protect natural resources and the environment through native plant restoration, site cleanup, water and soil sampling, as well as take part in environmental and cultural education.

⁴ Under the RESTORE Act, to be eligible for funding in an FPL an activity must be carried out in the “Gulf Coast Region.” The Act defines “Gulf Coast Region” as “(A) in the Gulf Coast States, the coastal zones (as that term is defined in section 304 of the Coastal Zone Management Act of 1972 (16 U.S.C. § 1453)), except that, in this section, the term ‘coastal zones’ includes land within the coastal zones that is held in trust by, or the use of which is by law subject solely to the discretion of, the Federal Government or officers or agents of the Federal Government)) that border the Gulf of Mexico; (B) any adjacent land, water, and watersheds, that are within 25 miles of the coastal zones described in subparagraph (A) of the Gulf Coast States; and (C) all Federal waters in the Gulf of Mexico.” Pursuant to the Department of the Treasury regulations for the Gulf Coast Restoration Trust Fund, “[a]n activity selected by the Council is carried out in the Gulf Coast Region when, in the reasonable judgment of the Council, each severable part of the activity is primarily designed to restore or protect that geographic area” 31 CFR § 34.202(a).

This program will continue to train youth in long-term stewardship of the Gulf Coast environment. Anticipated environmental benefits include disrupting the process of shoreline erosion, mitigating the impacts of climate change and associated sea level rise, restoring a critical environmental balance in a threatened area, and building in tribal youth a knowledge and commitment to protecting the environment, as well as providing an introduction to skills useful for future work in the field of environmental restoration. The impact of this education and training should continue for many generations to come.

This program is covered by DOI NEPA Categorical Exclusion 43 CFR § 46.210 (e) and (j) and associated environmental compliance documentation.

Public Comment Process for FPL 3b

Draft FPL 3b was available for a 50-day public review and comment period beginning November 16, 2020 and ending at 11:59 MT January 5, 2021. During this time frame, the RESTORE Council (Council) provided an overview of the proposed FPL 3b via live public webinars, per the schedule that was provided on the [Council's website](#). The public was able to provide feedback during the public comment period, both verbally and in writing during the public webinars, by email, and via the online Planning, Environment and Public Comment (PEPC) site.

The Council reviewed all comments received before the deadline, developed a written response to comments, and considered those comments as it determined how to proceed with finalizing FPL 3b. The Council decided to proceed to a vote to approve FPL 3b, and notified the public in advance of this vote via automatic email updates. All associated information including fact sheets, draft activity descriptions, and original proposal packages, was also made available on the [Council's website](#).

The Council appreciates those stakeholders who are not only interested in Gulf restoration but also participate in the Council's restoration activities by offering comments during the public comment period. If you are interested in receiving notifications of upcoming webinars, public meetings, or public comment periods, subscribe to receive the Council's automatic email, "EBlast" updates at www.restorethegulf.gov/contact-us and select the "Public Meetings and Public Comment Periods" category in addition to other categories of interest to you.

References

- Arkema, K.A., G. Guannel, G. Verutes, S.A. Wood, A. Guerry, M. Ruckelshaus, P. Kareiva, M. Lacayo, and J.M Silver. 2013. "Coastal habitats shield people and property from sea-level rise and storms." *Nature Climate Change* 3: 913–918.
- Badruzzman, M., J. Pinzon, J. Oppenheimer, and J. Jacangelo. 2012. "Sources of nutrients impacting surface waters in Florida: A review." *Journal of Environmental Management* 109: 80–92. <https://www.sciencedirect.com/science/article/pii/S030147971200237X?via%3Dihub>.
- Barbier, E.B., I.Y. Geordiou, B. Enchelmeyer, and D.J. Reed. 2013. "The value of wetlands in protecting southeast Louisiana from hurricane storm surges." *PLoS One* 8(3): e58715. <https://doi.org/10.1371/journal.pone.0058715>.
- Beechie, T.J., D.A. Sear, J.D. Olden, G.R. Pess, J.M. Buffington, H. Moir, P. Roni, and M.M. Pollock. 2010. "Process-based principles for restoring river ecosystems." *BioScience* 60: 209–222.
- Bennett, E.M. Carpenter, S.R., and Caraco, N.F. 2001. "Human impact on erodible phosphorus and eutrophication: a global perspective." *Bioscience* 51(3): 227-234.
- Carey, R.O., G.J. Hochmuth, C.J. Martinez, T.H. Boyer, V.D. Nair, M.D. Dukes, G.S. Toor, A.L. Shober, J.L. Cisar, L.E. Trenholm, and J.B. Sartain. 2012. "Regulatory and resource management practices for urban watersheds: The Florida experience." *HortTechnology* 22(4): 418–429.
- Chapman, P., Reed, D. 2006. "Advances in coastal habitat restoration in the northern Gulf of Mexico." *Ecological Engineering* 26: 1-5.
- Chesney, E.J., D.M. Baltz, and R.G. Thomas. 2000. "Louisiana estuarine and coastal fisheries and habitats: Perspectives from a fish's eye view." *Ecological Applications* 10 (2): 350-366. <https://doi.org/10.2307/2641098>.
- Crandall, C.A., J. St. Peter, V. Ibeanusi, P. Medley, J. Drake, C. Jagoe, J. Vernon, and G. Chen. Forthcoming. "Identification and prioritization of forested areas for hydrologic restoration in the Lower Apalachicola River Basin and Apalachicola Gulf Coast Region." *Journal of Ecohydrology*.
- Dahl, T.E. 1990. "Wetland Losses in the United States 1780s to 1980s." Washington D.C.: U.S. Department of the Interior, Fish and Wildlife Service.
- DeLuca, W.V., C.E. Studds, R.S. King, and P.P. Marra. 2008. "Coastal urbanization and the integrity of estuarine waterbird communities: threshold responses and the importance of scale." *Biological Conservation* 141(11): 2669-2678.

Diaz, R.J. and R. Rosenberg. 2008. "Spreading dead zones and consequences for marine ecosystems." *Science* 321: 626-929.

FDEP (Florida Department of Environmental Protection). 2018a. "Florida Adaptation Planning Guidebook." <https://floridadep.gov/sites/default/files/AdaptationPlanningGuidebook.pdf>. Accessed 31 Jul. 2020.

FDEP (Florida Department of Environmental Protection). 2018b. "Final Integrated Water Quality Assessment for Florida: 2018 Sections 3030(d), 305(b), and 314 Report and Listing Update, June 2018." https://floridadep.gov/sites/default/files/2018_integrated_report.pdf. Accessed 31 Jul. 2020.

FDEP (Florida Department of Environmental Protection). 2018c. "Statewide Best Management Practice (BMP) Efficiencies for Nonpoint Source Management of Surface Waters, Draft July 2018." <https://floridadep.gov/dear/water-quality-restoration/documents/statewide-best-management-practice-bmp-efficiencies>. Accessed 31 Jul. 2020.

FF (Florida Forever). 2019a. "Florida Forever Five-year Plan, Summary of Recommendations and Status as of December 2018." Division of State Lands Florida Department of Environmental Protection.

<http://publicfiles.dep.state.fl.us/DSL/FFWeb/Current%20Florida%20Forever%20Five-Year%20Plan.pdf>. Accessed 31 Jul. 2020.

FF (Florida Forever). 2019b. "2020 Florida Forever Priority List – ARC Recommended." Division of State Lands Florida Department of Environmental Protection.

<http://publicfiles.dep.state.fl.us/DSL/FFWeb/ARC%20Recommended%20Florida%20Forever%20Priority%20List.pdf>. Accessed 31 Jul. 2020.

FL FWC (Florida Fish and Wildlife Conservation Commission) and FL DEP (Florida Department of Environmental Protection). 2018. "Florida Gulf Environmental Benefit Fund Restoration Strategy." Tallahassee: Florida Department of Environmental Protection.

Florida Sea Grant. 2013. "Apalachicola Bay Oyster Situation Report (TP-200)."

https://www.flseagrant.org/wp-content/uploads/tp200_apalachicola_oyster_situation_report.pdf. Accessed 10 Mar. 2020.

Florida Statutes. 2018. Chapter 259 Land Acquisitions for Conservation or Recreation. Title XVIII Public Lands and Property. The Florida Senate.

<https://www.flsenate.gov/Laws/Statutes/2018/Chapter259>. Accessed 31 Jul. 2020.

Goecker, M.E., J. F. Valentine, S.A. Sklenar, and G.I. Chaplin. 2009. "Influence from hydrological modification on energy and nutrient transference in a deltaic food web." *Estuaries and Coasts* 32(1): 73-187.

https://www.researchgate.net/profile/John_Valentine/publication/226003732_Influence_from_Hy

[drological 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](https://doi.org/10.1002/2015EF000348). Accessed 27 Mar. 2020.

Hovenga, P.A., D. Wang, S. C. Medeiros, S. C. Hagen, and K. Alizad. 2016. "The response of runoff and sediment loading in the Apalachicola River, Florida to climate and land use land cover change." *Earth's Future* 4(5): 124–142. <https://doi.org/10.1002/2015EF000348>.

Kauffman, T.C., C. W. Martin, and J. F. Valentine. 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: 97-108. 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. Accessed 27 Mar. 2020.

Kelly, E.A. 2019. "Developing water quality policies: assessing natural environmental characteristics and anthropogenic impact on microbiological water quality at recreational beaches." PhD diss., University of Miami. https://scholarlyrepository.miami.edu/oa_dissertations/2279/ Accessed 4 Apr. 2020.

Kennicutt, M.C. 2017. "Water Quality of the Gulf of Mexico." In *Habitats and Biota of the Gulf of Mexico: Before the Deepwater Horizon Oil Spill*, edited by C. Ward. New York: Springer.

Kessler, R. 2011. "Stormwater Strategies: Cities Prepare Aging Infrastructure for Climate Change." *Environmental Health Perspective* 119(12): A514-A519. <https://ehp.niehs.nih.gov/doi/full/10.1289/ehp.119-a514>.

Kirschenfeld, T., R.K. Turpin, and L.R. Handley. 2007. "Perdido Bay." In *Seagrass Status and Trends in the Northern Gulf of Mexico: 1940-2002*, edited by L. Handley, D. Altsman, and R. DeMay. U.S. Geological Survey Scientific Investigations Report 2006–5287, 267. Washington, DC: U.S. Department of the Interior. (Report 855-R-04-003).

Lymer, B.L., J. Weinberg, and T.J. Clausen. 2018. "Water quality management from source to sea: from global commitments to coordinated implementation." *Water International* 43(3): 349-360.

Mallin, M.A., K. E. Williams, E.C. Esham, and R.P. Lowe. 2000. "Effect of human development on bacteriological water quality in coastal watersheds." *Ecological Applications* 10(4): 1047-1056.

Manis, J.E., S.K. Garvis, S.M. Jachec, and L.J. Walters. 2015. "Wave attenuation experiments over living shorelines over time: a wave tank study to assess recreational boating pressures." *J Coast Conserv.* 19:1–11. <https://doi.org/10.1007/s11852-014-0349-5>.

- Martin, C.W. and J.F. Valentine. 2012. "Eurasian milfoil invasion in estuaries: physical disturbance can reduce the proliferation of an aquatic nuisance species." *Marine Ecology Progress Series* 449:109-119.
https://www.researchgate.net/publication/271252133_Eurasian_milfoil_invasion_in_estuaries_Physical_disturbance_can_reduce_the_proliferation_of_an_aquatic_nuisance_species. Accessed 1 Apr. 2020.
- MBNEP (Mobile Bay National Estuary Program). 2012. "Upper Fish River Bacterial Source Tracking Project: October 2008-March 2011. Addendum for the Mobile Bay National Estuary Program."
http://www.mobilebaynep.com/images/uploads/library/Fish_River_Source_Tracking_Project_Addendum.pdf. Accessed 12 Jun. 2020.
- MBNEP (Mobile Bay National Estuary Program). 2013. "Comprehensive Conservation and Management Plan for Alabama's Estuaries and Coast."
http://www.mobilebaynep.com/images/uploads/library/CCMP_Handout_9-25.pdf. Accessed 14 Jan. 2019.
- MBNEP (Mobile Bay National Estuary Program). 2014. "Analysis of Sediment Loading Rates and Water Quality for the Bon Secour River Watershed, Baldwin County, AL."
http://www.mobilebaynep.com/images/uploads/library/GSA_Bon_Secour_River_Watershed_Sedimentation_and_Water_Quality_Assessment.pdf. Accessed 12 Jun. 2020.
- MBNEP (Mobile Bay National Estuary Program). 2016. "Water Quality Report for Toulmins Spring Branch Watershed."
http://www.mobilebaynep.com/images/uploads/library/Water_Quality_for_TSBW.pdf. Accessed 12 Jun. 2020.
- MBNEP (Mobile Bay National Estuary Program). 2018. "West Fowl River Shoreline Survey Final Report." http://www.mobilebaynep.com/images/uploads/library/Final_Report-NEP-WFRshoreline-Full-082918.pdf. Accessed 12 Jun. 2020.
- MBNEP (Mobile Bay National Estuary Program). 2019. "Respect the Connect. Comprehensive Conservation and Management Plan for Alabama's Estuaries and Coasts 2019-2023."
http://www.mobilebaynep.com/images/uploads/library/CCMP_Handout_11.25.2019.pdf. Accessed 24 Mar. 2020.
- MDEQ (Mississippi Department of Environmental Quality). 2017. "The Mississippi Gulf Coast Restoration Plan: A path forward toward sustainable ecosystem restoration." Jackson: Mississippi Department of Environmental Quality.
- MDEQ (Mississippi Department of Environmental Quality). 2018. "Mississippi State Expenditure Plan Amendment." Jackson: Mississippi Department of Environmental Quality.
<https://www.mdeq.ms.gov/wp-content/uploads/2018/11/Mississippi-2018-SEP-Amendment.pdf>. Accessed 14 Jan. 2019.

MDEQ (Mississippi Department of Environmental Quality). 2019. "Basin Management Approach Basin Listing: Coastal Streams Basin." Jackson: Mississippi Department of Environmental Quality. <https://www.mdeq.ms.gov/water/surface-water/watershed-management/basin-management-approach/basin-listing/coastal-streams/>. Accessed 1 Feb. 2019.

Minello, T.J., K.W. Able, M.P. Weinstein, and C.G. Hays. 2003. "Salt marshes as nurseries for nekton: testing hypotheses on density, growth and survival through meta-analysis." *Marine Ecology Progress Series* 246: 39-59.

Mitchell, M., D.M. Bilkovic, R. Pinto. 2019. "Embracing dynamic design for climate-resilient living shorelines." *Journal of Applied Ecology* 56(5): 1099-1105.

Mitsch, W. J., and J.G. Gosselink. 2000. "The value of wetlands: importance of scale and landscape setting." *Ecological Economics* 35(1): 25-33.

Nagy, R.C., B.G. Lockaby, L. Kalin, and C. Anderson. 2012. "Effects of urbanization on stream hydrology and water quality: The Florida Gulf Coast." *Hydrological Processes* 26: 2019–2030.

NOAA (National Oceanic and Atmospheric Administration) and USGS (U.S. Geological Survey). 2020. *Gulf Coast Monitoring & Assessment Portal*. <https://restorethegulf.gov/cmap>. Accessed 13 August 2020.

NRC (National Research Council). 2008. *Hydrologic effects of a changing forest landscape*. The Washington D.C.: National Academies Press.

NFWFMD (Northwest Florida Water Management District). n.d.a. "Overview: Minimum Flows & Minimum Water Levels." <https://www.nfwwater.com/Water-Resources/Minimum-Flows-Minimum-Water-Levels>. Accessed 31 Jul. 2020.

NFWFMD (Northwest Florida Water Management District). 2017. "Perdido River and Bay. Surface Water Improvement and Management (SWIM) Plan." in NFWFMD Program Development Series. Tallahassee, FL: Northwest Florida Water Management District. https://www.nfwwater.com/content/download/16009/110908/Perdido%20River%20and%20Bay%20SWIM%20Plan%20October%202017_erata.pdf. Accessed 10 Jan. 2019.

O'Connell, M.T., C.D. Franze, E.A. Spalding, and M.A. Poirrier. 2005. "Biological resources of the Louisiana Coast: Part 2. Coastal animals and habitat associations." *Journal of Coastal Research*, SI 44: 146-161. https://la-dwh.com/wp-content/uploads/2018/02/8.2.4.6.1.1.4_ID59789.OConnell.etal_2005.Biological.resources.of_La_coast_2.pdf. Accessed 12 Feb. 2021.

O'Mullan, G.D., A.R. Juhl, R. Reichert, E. Schneider, and N. Martinez. 2019. "Patterns of sediment associated fecal indicator bacteria in an urban estuary: benthic-pelagic coupling and implications for shoreline water quality." *Science of the Total Environment* 656: 1168-1177.

Park, S.W., S. Mostaghimi, R.A. Cooke, and P.W. McClellan. 1994. "BMP impacts on watershed runoff, sediment and nutrient yields." *Water Resources Bulletin* 30(6): 1011-1023.

Powell, G. L., J. Matsumoto, and D.A. Brock. 2002. "Methods for determining minimum freshwater inflow needs of Texas bays and estuaries." *Estuaries* 25: 1262–1274.

Prosser, D.J., T.E. Jordan, J.L. Nagel, R.D. Seitz, D.E. Weller, and D.F. Whigham. 2018 "Impacts of Coastal Land Use and Shoreline Armoring on Estuarine Ecosystems: an Introduction to a Special Issue." *Estuaries and Coasts* 41(S1): 2-18.

Reisinger, A.J., E. Woytowitz, E. Majcher, E.J. Rosi, K.T. Belt, J.M. Duncan, S.S. Kaushal, and P.M. Groffman. 2018. "Changes in long-term water quality of Baltimore streams are associated with both gray and green infrastructure." *Limnology and Oceanography* 64 (S1): S60-S76.

RESTORE Act (Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2012). 2012. Subtitle F of Pub. L. 1112-141, 33 U.S.C §1321(t) and note.

<https://www.restorethegulf.gov/sites/default/files/RESTORE%20ACT%20July2012.pdf>.

Accessed 15 Nov. 2019.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2013. "Initial Comprehensive Plan: Restoring the Gulf's Ecosystem and Economy (2013 Initial Comprehensive Plan)."

https://www.restorethegulf.gov/sites/default/files/FPL_forDec9Vote_Errata_04-07-2016.pdf.

Accessed 31 Jul. 2020.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2015. "2015 Initial Funded Priorities List (2015 Initial FPL)."

https://restorethegulf.gov/sites/default/files/FPL_forDec9Vote_Errata_04-07-2016.pdf. Accessed

31 Jul. 2020.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2016. "Comprehensive Plan Update 2016: Restoring the Gulf's Ecosystem and Economy (2016 Comprehensive Plan Update)."

[https://www.restorethegulf.gov/sites/default/files/CO-](https://www.restorethegulf.gov/sites/default/files/CO-PL_20161208_CompPlanUpdate_English.pdf)

[PL_20161208_CompPlanUpdate_English.pdf](https://www.restorethegulf.gov/sites/default/files/CO-PL_20161208_CompPlanUpdate_English.pdf). Accessed 31 Jul. 2020.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2017. "2017 Funded Priorities List: Comprehensive Plan Commitment and Planning Support (2017 CPS FPL)."

https://www.restorethegulf.gov/sites/default/files/2017_CPS_FPL_Final.pdf. Accessed 31 Jul.

2020.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2019a. "Gulf Coast Ecosystem Restoration Council Planning Framework (2019 Planning Framework)."

https://www.restorethegulf.gov/sites/default/files/508_PlanningFramework_Final_201908.pdf.

Accessed 31 Jul. 2020.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2019b. "Council-Selected Restoration Component Funded Priorities List 3 Proposal Submission Guidelines and Review Process (2019 Submission Guidelines)."

https://www.restorethegulf.gov/sites/default/files/Final_FPL3_Proposal_Guidelines_May_15_2019_508_Compliant.pdf. Accessed 31 Jul. 2020.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2020a. "Gulf Coast Ecosystem Restoration Council Funded Priorities List 3a (FPL 3a)."

https://restorethegulf.gov/sites/default/files/Final_FPL%203a_Final_Perdido_EC_508_3_2_2020.pdf. Accessed 31 Jul. 2020.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2020b. "Additional Guidance for Metric Selection." https://restorethegulf.gov/sites/default/files/PIPERMetrics_20200415.pdf.

Accessed 10 Aug. 2020.

RESTORE Council (Gulf Coast Ecosystem Restoration Council). 2020c. "FPL 3b Internal Best Available Science Review Panel Summary."

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

Rodgers, K.D., A.B. Hoos, V.L. Roland, and R.R. Knight. 2018. *Trend analysis results for sites used in RESTORE Streamflow alteration assessments*. V1.1. November 2019. Distributed by United States Geological Survey. <https://doi.org/10.5066/P9YSE754>.

Rozas, L.P., C.W. Martin, and J.F. Valentine. 2013. "Effects of reduced hydrological connectivity on the nursery use of shallow estuarine habitats within a river delta." *Marine Ecology Progress Series* 492: 9-20.

https://www.researchgate.net/publication/260337816_Effects_of_reduced_hydrological_connectivity_on_the_nursery_use_of_shallow_estuarine_habitats_within_a_river_delta. Accessed 25 Mar. 2020.

SCA (The Strategic Conservation Assessment of Gulf Coast Landscapes). 2020. "Stakeholder Priorities and Conservation Tools". <https://sca-natureserve.hub.arcgis.com/>. Accessed 28 Aug. 2020.

- Samiappan, S., A. Shamaskin, A. J. Liu, J. Roberts, A. Linhoss, K. Evans, J. Tirpak, S. Ashby. (in prep). "Evidence-based land conservation framework using multi-criteria acceptability analysis: A dynamic web application."
- Smith, W.E. 1988. Geomorphology of the Mobile delta. *Geological Survey of Alabama*, Bul. 132.
- Smith, E.H., A. Banda, J. Tunnell, Jr, and K. Withers. 2013. "Ecosystem-based management in the Laguna Madre, Western Gulf of Mexico." In *Gulf of Mexico Origin, Waters, and Biota: Volume 4, Ecosystem-Based Management*, edited by John W. Day, Alejandro Yáñez-Arancibia, Hector Alafita Vásquez, William W. Arzapalo, Donald M. Baltz, and Alfonso Banda, 131-152. College Station: Texas A&M University Press. muse.jhu.edu/book/24556.
- Sun, G. and J.M. Vose. 2016. "Forest management challenges for sustaining water resources in the Anthropocene." *Forests* 7: 68-80.
- Sweet WV, R.E. Kopp, C.P. Weaver, J. Obeysekera, R. Horton, E.R. Thieler, and C. Zervas. 2017. "Global and regional sea level rise scenarios for the United States (Tech. Rep. NOS CO-OPS 083)." Silver Spring, MD: National Oceanic and Atmospheric Administration.
- SWFWMD (Southwest Florida Water Management District). 2010. "Proposed Minimum Flows and Levels for the Upper and Middle Withlacoochee River – Peer Review DRAFT." <https://www.swfwmd.state.fl.us/sites/default/files/documents-and-reports/reports/WithlacoocheeMFLReport.pdf>. Accessed 31 Jul. 2020.
- TGLO (Texas General Land Office). 2019. "Texas Coastal Resiliency Master Plan." Austin, Texas. <https://coastalstudy.texas.gov/resources/files/2019-coastal-master-plan.pdf>. Accessed 31 Jul. 2020.
- Timpane-Padgham, B.L., T. Beechie, and T. Klinger. 2017. "A systematic review of ecological attributes that confer resilience to climate change in environmental restoration." *PLoS ONE* 12(3): e0173812. <https://doi.org/10.1371/journal.pone.0173812>.
- TSDC (Texas State Data Center). 2014. "Projections of the Population of Texas and Counties in Texas by Age, Sex and Race/Ethnicity for 2010-2050." San Antonio: Texas Office of the State Demographer. <http://www.uh.edu/hobby/docs/research/population/2014%20PPRLE-SV2.pdf>. Accessed 10 Jan. 2019.
- Valentine, J. and S. Sklenar. 2006. "Mobile-Tensaw Delta hydrological modifications impact study. Final report prepared for the Mobile Bay National Estuary Program." Dauphin Island, AL: Dauphin Island Sea Lab. http://www.mobilebaynep.com/site/news_pubs/research.htm. Accessed 2 Apr. 2020.

Vörösmarty, C.J., P.B. McIntyre, M.O. Gessner, D. Dudgeon, A. Prusevich, P. Green, S. Glidden, S.E. Bunn, C.A. Sullivan, C. Reidy Liermann, and P.M. Davies. 2010. "Global threats to human water security and river biodiversity." *Nature*, 467, no. 7315: 555-561.

Vose, J.M., G. Sun, C.R. Ford, M. Bredemeier, K. Otsuki, A. Wei, Z. Zhang, and L. Zang. 2011. "Forest ecohydrological research in the 21st century: what are the critical needs?" *Ecohydrology* 4(2):146-158.

Vose J.M., K.L. Martin, and P.K. Barten. 2016. "Applications of forest hydrologic science to watershed management in the 21st century." In *Forest hydrology*, edited by D. Amatya, T. Williams, L. Bren, C.D. Jong. Wallingford, UK: CABI Press.

Vose, J.M. 2019. "Forest and Water in the 21st Century: A Global Perspective." *Journal of Forestry* 117(1):80–85.

Withers, K. 1994. "The Relationship of Macrobenthic Prey Availability to Shorebird Use of Blue-Green Algal Flats in the Upper Laguna Madre." Ph.D. diss. Texas A&M University.

WHSRN (Western Hemisphere Reserve Network). 2019. "Laguna Madre Wetland Complex Overview." https://whsrn.org/whsrn_sites/laguna-madre/. Accessed 28 Aug. 2020.