RESTORE Council Activity Description

General Information

Sponsor:
Florida Department of Environmental Protection

Title:
Florida Gulf Coast Tributaries Hydrologic Restoration Program

Project Abstract:
The RESTORE Council has approved $3.44M in planning activities as FPL Category 1 in Council-Selected Restoration Component funding for the Florida Gulf Coast Tributaries Hydrologic Restoration Program (THRP) sponsored by Florida, through the Florida Department of Environmental Protection (FDEP). In addition, the Council is also identifying a separate $10.31M implementation component as an FPL Category 2 priority for potential future funding. The THRP supports the primary RESTORE Comprehensive Plan goal to restore water quality and quantity throughout the Florida Gulf Coast by underwriting a comprehensive suite of linked, high-priority hydrologic improvement projects. Examples include canal plugging, restoring natural dimensions of tidal passes/inlets, restoring/reconnecting wetlands, installing erosion control or water control structures, etc. Planning and implementation projects proposed in Florida watersheds that drain to the Gulf of Mexico will be considered under this program.

The THRP will improve flow regime dynamics, nutrient cycling, salinity gradients, wildlife habitat and biodiversity, recreational experiences, and may help reduce algal blooms and fish kills. The THRP framework will allow for administration of project funding that targets projects providing cumulative benefits to the Gulf and link environmental benefits between selected projects and other restoration projects in a watershed or region. Combining or leveraging projects within a geographic area contributes to large-scale water resource improvements while maximizing each dollar. Program duration is 10 years.

FPL Category: Cat1: Planning/ Cat2: Implementation

Activity Type: Program

Program: Florida Gulf Coast Tributaries Hydrologic Restoration Program

Co-sponsoring Agency(ies): N/A

Is this a construction project?: Yes

RESTORE Act Priority Criteria:
(II) Large-scale projects and programs that are projected to substantially contribute to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast ecosystem.
(III) Projects contained in existing Gulf Coast State comprehensive plans for the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region.

Priority Criteria Justification:
The Florida THRP meets both priority Criteria II large-scale projects and programs and Criteria III projects contained in existing Gulf Coast State comprehensive plans (Council 2019). The THRP will fund a suite of projects focused on restoration of hydrologic connectivity and natural salinity regimes in watersheds along the Gulf Coast. The program will improve estuarine and coastal waters within Florida at a large scale by restoring hydroperiods, salinity regimes, and freshwater flows. Project selection criteria will prioritize projects included in other state or federal restoration planning documents, such as BMAPs, MFLs, SWIM plans, the SEP, and FTIG restoration plans which identify both the need and benefits of such projects, and which are based on strong science.

DWH funds have been invested throughout Florida's Gulf Coast watersheds to improve water quality, hydrology, and habitats. The DWH Funds have leveraged State and local investments in BMAPs and SWIM Plans. The THRP will significantly increase these investments. The state environmental agencies, including FDEP, FFWC, and the state's WMDs continue to collaborate with DWH funding partners to build on existing investments to enable Florida to fund projects that will make significant, measurable improvements to ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats. While individual projects may be limited in scope, Florida's selection criteria will ensure, collectively, that they contribute to large-scale water quality/quantity and habitat restoration benefits.

Project Duration (in years): 10

Goals

Primary Comprehensive Plan Goal:
Restore Water Quality and Quantity

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

Secondary Comprehensive Plan Objectives:
N/A

Secondary Comprehensive Plan Goals:
N/A

PF Restoration Technique(s):
Protect and conserve coastal, estuarine, and riparian habitats: Land acquisition
Restore hydrology and natural processes: Restore hydrologic connectivity
Restore hydrology and natural processes: Restore natural salinity regimes

Location

Location:

Florida watersheds that drain to the Gulf of Mexico including Perdido, Pensacola, Choctawhatchee – St. Andrew, Apalachicola – Chipola, Ochlocknee – St. Marks, Suwannee, Springs Coast, Withlacoochee, Tampa Bay, Tampa Bay Tributaries, Sarasota-Peace-Myakka, Charlotte Harbor, Caloosahatchee, Everglades West Coast, Everglades, and Florida Keys

HUC8 Watershed(s):

South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(Perdido Bay)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Escambia(Lower Conecuh)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(Perdido)
South Atlantic-Gulf Region(Southern Florida) - Southern Florida(Everglades)
South Atlantic-Gulf Region(Southern Florida) - Southern Florida(Florida Bay-Florida Keys)
South Atlantic-Gulf Region(Southern Florida) - Southern Florida(Big Cypress Swamp)
South Atlantic-Gulf Region(Southern Florida) - Southern Florida(Caloosahatchee)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Peace(Peace)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Peace(Myakka)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Peace(Charlotte Harbor)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Tampa Bay(Sarasota Bay)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Tampa Bay(Manatee)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Tampa Bay(Little Manatee)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Tampa Bay(Alafia)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Tampa Bay(Hillsborough)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Tampa Bay(Tampa Bay)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Tampa Bay(Crystal-Pithlachascotee)
South Atlantic-Gulf Region(Peace-Tampa Bay) - Tampa Bay(Withlacoochee)
South Atlantic-Gulf Region(Suwannee) - Aucilla-Waccasassa(Waccasassa)
South Atlantic-Gulf Region(Suwannee) - Aucilla-Waccasassa(Econfina-Steinhatchee)
South Atlantic-Gulf Region(Suwannee) - Suwannee(Lower Suwannee)
South Atlantic-Gulf Region(Suwannee) - Suwannee(Santa Fe)
South Atlantic-Gulf Region(Ochlockonee) - Ochlockonee(Lower Ochlockonee)
South Atlantic-Gulf Region(Apalachicola) - Apalachicola(Apalachicola)
South Atlantic-Gulf Region(Apalachicola) - Apalachicola(New)
South Atlantic-Gulf Region(Apalachicola) - Apalachicola(Apalachicola Bay)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(St. Andrew-St. Joseph Bays)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(Choctawhatchee Bay)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(Pensacola Bay)
South Atlantic-Gulf Region(Apalachicola) - Apalachicola(Chipola)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(Yellow)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Florida Panhandle Coastal(Blackwater)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Choctawhatchee(Pea)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Choctawhatchee(Lower Choctawhatchee)
South Atlantic-Gulf Region(Choctawhatchee-Escambia) - Escambia(Escambia)
South Atlantic-Gulf Region(Suwannee) - Aucilla-Waccasassa(Aucilla)
South Atlantic-Gulf Region(Ochlockonee) - Ochlockonee(Apalachee Bay-St. Marks)

State(s):
Florida

County/Parish(es):
FL - Escambia
FL - Pasco
FL - Calhoun
FL - Pinellas
FL - Charlotte
FL - Citrus
FL - Collier
FL -Columbia
FL - Dixie
FL - Franklin
FL - Gadsden
FL - Gilchrist
FL - Polk
FL - Sarasota
FL - Sumter
FL -Suwannee
FL - Taylor
FL - Union
FL - Wakulla
FL - Alachua
FL - Bay
FL - Bradford
FL - Gulf
FL -Hamilton
FL - Santa Rosa
FL - Walton
FL - Washington
FL - DeSoto
FL - Hardee
FL -Hernando
FL - Hillsborough
FL - Holmes
FL - Jackson
FL - Jefferson
FL - Lee
FL - Leon
FL - Levy
FL - Liberty
FL - Madison
FL - Manatee
FL - Marion
FL - Monroe
FL - Okaloosa
FL - Hendry

Congressional District(s):

FL - 14
FL - 15
FL - 26
FL - 11
FL - 13
FL - 16
FL - 5
FL - 12
FL - 1
FL - 19
FL - 25
FL - 2
FL - 17

Narratives

Introduction and Overview:

Under the Florida Gulf Coast Tributaries Hydrologic Restoration Program (THRP, see Table of Acronyms attached), hydrologic and salinity conditions along the Gulf Coast will be restored by reconnecting natural drainage pathways and reestablishing historic sheet flows. Alteration in quantities and timing of freshwater flows has damaged estuaries and coastal habitats, harming water quality, benthic communities, oysters, seagrass, and juvenile fish, and encouraging the proliferation of invasive species, which decreases habitat, biodiversity and productivity. Alterations in hydrology can also affect the formation, magnitude, and persistence of blue-green algae blooms in Florida waters (Figure 1).

Managing freshwater flows is a priority in Florida to achieve MFLs for water resources (Figure 2), TMDLs, and NNC (FDEP 2019). Modified water deliveries and reconnecting flow paths and drainage networks are best practices for restoring the timing, frequency, and magnitude of freshwater to coastal ecosystems, thereby supporting the dynamic flow regimes important for fluvial geomorphology and subsurface groundwater exchanges that promote good water quality and ecological health (Forbes 2012). In addition, restoration of natural groundwater flow regimes and its interactions with surface water in hydrologic restoration are critical to achieving sustainable watershed/estuary hydrology in coastal areas (AGWT 2003, Sophocleous 2002, Woessner 2000 and Winter 1995). Multiple flow regimes are needed to maintain biotic and abiotic resources within a river ecosystem. It is believed that maintenance of stream ecosystems rests on streamflow management practices that protect physical processes, which in turn influence biological systems, mimic the natural hydrograph, and, to the extent feasible, will achieve the ecological stability of the communities and species in the waterway/watershed (Hill et al. 1991, as cited in SWFWMD 2010).

FDEP will underwrite intrinsically linked, high-priority projects using a watershed/estuary-based approach to provide regional benefits and guide the selection of projects best suited to address the hydrologic and salinity regime stressors within a watershed. THRP selection criteria will prioritize projects that have been identified in other state or federal restoration planning documents, such as MFLs, BMAPs, SWIM plans, the SEP, and FL-TIG restoration plans, which identify both the need and benefits of such projects. Because initial project planning and design, technical review, stakeholder engagement, and identification of risks are typically part of the development of these restoration plans, use of this approach to identify projects for funding under the THRP will promote use of BAS and improve the likelihood of project success. This helps to ensure that this program can be successfully implemented and will achieve synergies to effect large-scale ecosystem restoration. Collaboration with NRDA, NFWF, or other state and federal funding programs will allow the THRP to fund more or larger scale projects and maximize funds to achieve large-scale restoration.

The public will be involved during development of selection criteria and project selection. FDEP will hold a webinar to review the draft project selection criteria and solicit public input. After proposals are evaluated using the selection criteria, a draft list of projects proposed for funding will be published on the Florida DWH website for public review and comment. Florida will finalize project lists only after public comments are analyzed. The final projects list(s) and workplans will be submitted to Council staff for BAS external review and approval.

Partners: Through the CPS process, collaboration occurred to develop the original proposal for this program. Meetings were held with local governments, WMDs, NEPs, NGOs, Florida's RESTORE Act COEs, the Gulf Consortium, and other Council members. Additionally, the THRP will rely on the relationships and partners already in place as part of the MFL identification process and SWIM and SEP plans, both of

which have relied on extensive stakeholder outreach and participation during development and throughout implementation.

Goals/Objectives: As upland, estuarine, and marine habitats are intrinsically connected, a program that reconnects natural drainage pathways to restore hydrologic and salinity regimes on Florida's Gulf Coast, emphasizing projects with linked benefits in a watershed or region, will maximize restoration to achieve cumulative benefits. In the Comprehensive Plan Update (Council 2016), the Council seeks to "optimize ecosystem restoration benefits by advancing large-scale solutions that take into account the environmental conditions of a given region of the Gulf." Florida will develop the THRP to focus on addressing the stressors described and identified in MFLs, TMDLs/BMAPs, 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.

Commitments: FDEP's overall mission is to institute programs to protect and improve water quality and aquatic resources; to work with communities, local governments, and other agencies to protect and restore water quality and supply; and to provide funding assistance for water restoration and infrastructure projects (FDEP 2020). This makes FDEP well suited to manage the THRP and facilitate project selection that will result in hydrologic and salinity regime restoration. In response to ongoing blue-green algae issues within the state, the Florida Legislature determined that the adoption of minimum flows and minimum water levels (along with recovery and prevention strategies) required immediate action, directing FDEP and WMDs to adopt minimum flows and minimum water levels (FS 373.042). Florida's Blue-Green Algae Task Force believes that regional storage and treatment infrastructure is urgently needed in South Florida to manage flows to reduce damaging freshwater discharges to estuaries and to achieve TMDLs and established NNC (FDEP 2019). Accordingly, the task force recommends that the siting, design, and funding of this infrastructure be a priority.

Comprehensive hydrologic restoration projects have been identified in adopted MFL recovery or prevention strategies, SWIM plans, and the Florida SEP (e.g., Lee County's North East Caloosahatchee Tributaries Restoration Project and Collier County's Comprehensive Watershed Improvement Program). By leveraging other sources, the projects funded by this program will significantly benefit Florida's Gulf Coast.

Environmental Stressors: Hydromodification is considered the leading source of impairment in our nation's waters (U.S. EPA 2007). Linear infrastructure such as roads and levees traversing wetlands, floodplains, and other aquatic areas can block or impede surface flows essential to healthy ecosystem function (Sklar and Browder 1998 as cited in Council 2019). Traditional engineering management of streams and rivers for flood control, drainage, and stormwater conveyance has focused on maximized channel conveyance coupled with constructed regional detention areas and basins. Often, natural stream systems have been reduced to functioning as flood control and stormwater drainages, designed with a minimal landscape footprint to increase developable land (Forbes 2012). These factors have led to alterations in both freshwater flows and salinity regimes throughout Florida's coastal streams and estuaries. Florida law requires state WMDs to set MFLs for priority water bodies and assess and document current conditions or negative impacts associated with flow alterations.

Environmental Benefits: Coastal habitats will benefit from THRP projects due to the restoration of natural hydrologic and salinity regimes. The THRP is also expected to improve water quality; increase benthic communities, oysters, seagrass, and fish populations; and 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. A successful program will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats.

FPL 3 Planning Framework: 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, as cited in Council 2019). Efforts to restore natural salinity regimes may include plugging canals; restoring the natural dimensions of tidal passes and inlets; installing or enlarging culverts, gates, low water crossings and other structures to reestablish natural flows; strategic use of impoundments to capture and store flood waters to be released during droughts, etc. These efforts will support the overarching goals of restoring hydrology and salinity regimes. Selection criteria that support these overarching goals on a large scale is imperative to program success. Draft selection criteria are described below in the Methods section. Reliable, sound selection criteria lead to high-quality projects that maximize the extent and success of restoration under the THRP.

Costs: $13,750,000. Projects that leverage other funding sources will be prioritized under THRP selection criteria to maximize cost-benefit ratios and support large-scale restoration on Florida's Gulf Coast.

Timeline: The duration of program planning and implementation is expected to be 10 years.

Methods:

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 SEP (e.g., Lee County's North East Caloosahatchee Tributaries Restoration Project and Collier County's Comprehensive Watershed Improvement Program). Selected projects will implement restoration techniques that restore hydrologic connectivity or restore natural salinity regimes. Restoring physical and chemical processes is key to successfully achieve desired restoration outcomes. Reestablishing normative rates and magnitudes of physical, chemical, and biological processes have been found to be more sustainable solutions for restoring healthy stream and estuary ecosystems (Beechie et al. 2010). Successful river restoration should be guided by sustainable actions: 1) address the root causes of degradation, 2) consider physical and biological potential of the site, 3) scale actions commensurate to problem(s), and 4) articulate expected outcomes for ecosystem dynamics.

Projects funded under the THRP will be developed using BAS such as the water quality/quantity modeling currently used in TMDL development, which helps inform locations with hydrologic or nutrient loading significance (FDEP 2018), MFLs, and water level monitoring data collected by each WMD, etc. Improved hydrologic connectivity, salinity, groundwater and surface water exchanges and water quality at these locations will positively influence the overall system. Water quality/quantity modeling will also provide data necessary to address project resilience to increased rainfall and sea level rise. Improvement estimates for restoration techniques (e.g., canal filling or wetland restoration) will be derived from site-specific information where available and peer-reviewed sources. By establishing estimates of water quantity and quality improvements through quantitative means (e.g., changes freshwater low levels, restores natural salinities, etc.), individual projects can be evaluated together for cumulative benefits.

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, hyporheic exchanges, and promoting LID practices, conservation, and public-private partnerships that combine habitat creation and removal of human constraints to achieve ecological aims (Beechie et al. 2010). Good selection criteria will 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 by reestablishing natural hydrology and connectivity between freshwater and marine habitats.

Project selection based on similar considerations have been used in existing Florida financial assistance programs, in state planning documents (e.g., the GEBF Restoration Strategy, the State Expenditure Plan, etc.), and for funds distributed under other DWH restoration programs since 2013 (GEBF and NRDA) (FFWCC and FDEP 2018). Florida has already established various financial assistance programs and funding collaborations targeted at improving water quality and quantity (Section 319 Grant Program, State Water-quality Assistance Grants, and WMD cooperative funding agreements), which utilize BAS selection criteria developed by technical experts within Florida and the U.S. EPA. FDEP will host a public webinar to review draft project selection criteria to allow for public input. The initial draft selection criteria presented below will be refined prior to this webinar. Similar to NRDA restoration planning, FDEP will initiate a call for projects with the final project selection criteria. Any entity may submit a proposal for consideration to the project portal. FDEP currently uses a portal for their Deepwater Horizon project solicitations (https://floridadep.gov/wra/deepwater-horizon); this same portal could be used for the THRP or a similar portal could be set up for project submissions. Project proposals submitted will be reviewed by a technical review panel of agency experts against the project selection criteria. In addition, a draft list of proposed projects for funding will be published on the Florida DWH website for public review and comment. Florida will finalize the list after review of the public comments and submit the final project list(s) and workplans to Council staff for BAS external review and Council staff approval.

FDEP selection criteria will ensure that selected projects collectively contribute to large-scale hydrologic and salinity improvements. The extent to which a proposed project meets individual selection criteria and overall program goals and objectives and contributes to large-scale restoration efforts across the Gulf Coast region will dictate how projects are prioritized for selection.

Selection Criteria 1: Eligibility Screening

- Geographic Relevance: Projects must be geographically located within the 8-digit HUCs identified in this activity description.
- Relevant Goals and Objectives: Projects, at a minimum, must meet the primary Comprehensive Plan goal of restoring water quality and quantity and the primary objective of restoring, improving, and protecting water resources.
- Management Capabilities: Project sponsors receiving funding will need to demonstrate strong operation and management capabilities, as well as financial resources, to assure the long-term success. This screening criteria is not intended to prevent small disadvantaged communities from participating in the program.

Projects not meeting all the above criteria will be removed from the screening process and receive no further consideration in that call for proposals.

Selection Criteria 2: Technical Basis and Justification

- Alignment with Planning Framework: Projects should demonstrate alignment with the Council's Planning Framework, including restoration priorities, approaches, and techniques.
- Proposed in Existing Plans: Projects already proposed in existing plans (e.g., BMAPs, MFLs, SWIM plans, GEBF Restoration Strategy, SEP, etc.) will be given greater consideration as these projects have typically been previously vetted for BAS, feasibility, cost effectiveness, multiple benefits, etc.
- Benefits: Projects should have clear benefits to impaired or other priority water bodies, including those already identified in MFLs or SWIM plans to maximize benefits within a watershed. Priority will be given to projects that link environmental benefits between selected THRP projects and other restoration projects in a watershed or region. In addition, projects should clearly outline how their implementation will result in the environmental benefits outlined in the proposal (e.g., improved flow regime dynamics, nutrient cycling, salinity gradients, wildlife habitat and biodiversity, etc.).
- Best Available Science: Projects should clearly explain reliance on best available science.

Selection Criteria 3: Feasibility

- Technical Efficacy and Constructability: Projects should demonstrate feasibility. Such demonstration can be achieved through modeling, completion of feasibility studies, examples of successful analogous projects, etc.
- Resiliency: Projects should be designed to be resilient, taking into account sea level rise, hurricanes, other major storm events, etc. Projects with resiliency considerations built into the designs/plans will be given greater consideration.
- Cost-Effectiveness: Projects should outline their proposed funding needs and justification for cost effectiveness. Projects that show cost savings (or that have significant benefit-to-cost ratios will be prioritized.
- Schedule: Projects must indicate their proposed schedule through completion, with significant or critical project milestones clearly identified.
- Risk: Projects must clearly identify any potential risk to project success. Projects should discuss strategies to mitigate the identified risks.

Selection Criteria 4: Project Status and Leveragability

- Project Status: Projects will indicate the state of readiness to proceed. Projects showing a readiness to proceed will receive higher priority.
- Matching or Leveraged Funds: Projects will include a discussion on matching or leveraged funds (including in-kind contributions). Projects that include matching or leveraged funds from other sources will be given greater consideration.
- Environmental Compliance: Projects should identify all required environmental compliance approvals or associated permits needed for the project. Projects that have achieved greater levels of environmental compliance will be given greater consideration.

Environmental Benefits:

Healthy, functioning waterbodies along Florida's Gulf Coast provide a gradient of saltwater, estuarine, and freshwater environments critical to a variety of species and natural habitats. Loss of water flow is largely attributed to water management and development and has severely altered the natural landscape (Fling et al. 2018). Linear infrastructure such as roads and levees traversing wetlands, floodplains, and other aquatic areas can block or impede surface flows essential to healthy ecosystem function (Sklar and Browder 1998 as cited in Council 2019). Many projects funded under THRP will address these hydrologic impediments and contribute to restoring the multiple flow regimes on waterways flowing into Florida's Gulf Coast. This, in turn provides benefits to biotic and abiotic

resources within river/estuarine ecosystems. Federal and Florida law recognizes the need to regulate the influence of human activities affecting water quality and water quantity and ecosystem health. Artificial hydrologic modifications (levees, dams, and dikes) change the source, quality, or quantity of water and sediment that is available to coastal ecosystems. The THRP will focus on addressing these anthropogenic modifications to restore saltwater gradients and hydrologic connectivity which increase the health of the environments where unique organisms can survive and prosper. Climate change has the potential to cause more frequent and intense storms along with sea level rise. Coastal wetland loss is contributing to the vulnerability of coastal populations and wetlands conservation and restoration is often advocated as a means of reducing the impacts of coastal storms (Boutwell and Westra 2016). Coastal wetlands will be restored and protected under THRP which provides benefits to the communities in the vicinity of these projects by increasing resiliency in coastal areas. The THRP will prioritize the funding of hydrologic restoration projects identified in MFL recovery strategies. These projects will help restore and protect the physical processes that influence biological systems and mimic the natural hydrograph (to the extent feasible). Mimicking the natural hydrograph leads to ecological stability of the communities and species in the waterway/watershed (Stalnaker (1990) and Hill et al. 1991 as cited in SWFWMD 2010). THRP funded projects that implement this type of streamflow management will result in reconnecting and/or restoring hydrologic connectivity and salinity gradients in thousands of acres of habitats along Florida's Gulf Coast. This strategy proved effective when used in a NOAA sea grant funded project in the Upper Apalachicola Bay. That project reconnected severed drainage pathways by implementing 16 low-water crossings, 37 ditch blocks and 19 culvert modifications (NWFWMD n.d.a). Freshwater flows in the project subbasins rehydrated wetlands draining to East Bay and improved estuarine habitat conditions. A total of 2,374 acres was restored for $324,306. The THRP will integrate quantification of environmental benefits identified in MFL recovery strategies and SWIM plans into selection of restoration projects so that projects are selected based in part on desired ecological quality with options to attain the desired ecosystem-based on a broad spatial basis to achieve overall water quality, health, and resiliency of the larger ecosystem will be achieved. Success means improved flow regime dynamics, nutrient cycling, salinity gradients, SAV and wildlife habitat, biodiversity, reduced algal blooms and fish kills, and better recreational experiences. Tying together projects with existing plans (e.g., the MFLs, RESTORE SEP, SWIM, GEBF) ensures sound planning for successful restoration as projects continually build upon and contribute to one another during the restoration strategy development process (FFWCC and FDEP, 2018).

Metrics:

Metric Title: HR009: Restoring hydrology - Acres with restored hydrology
Target: TBD
Narrative: Florida will use this as a program-wide metric to evaluate the success of the program. Because specific projects or activities have not been identified as of yet under the program, a target value or range of values cannot be proposed, as it would be purely speculative. As projects or activities are selected for funding a range of values for this program metric can be proposed at that time. Program success will be determined as the number of acres of coastal streams, estuaries, wetlands, and associated upland habitats with restored hydrology or salinity regimes. However, each project or activity funded under this program may not be captured by this metric. Additional metrics will be determined to capture the benefits of each technique utilized under this program; specifically, each project or activity selected under the THRP will have specific metrics aimed at evaluating the success of the individual activity.

Metric Title: HC003: Land acquisition - Acres acquired in fee

Target: TBD

Narrative: Florida will use this as a project or activity metric. The project or activity metrics may be adjusted as needed once projects or activities are funded. Metrics may be added, removed, or replaced as appropriate at the project work plan application stage. Once a project or activity is selected a target value will be established. Project or activity success will be determined as the total number of acres acquired in fee. The purpose of this metric will be to verify that acquisition has been completed, and the performance measure will be an executed and recorded deed. Upon transfer of the parcel to Government ownership, this metric will be complete. The outcome will be an increase in protected acres.

Risk and Uncertainties:

Projects come with potential risks and uncertainties, including cost overruns and public controversy. Risks will be minimized through direct public engagement and ongoing transparency, careful cost estimates and reasonable contingencies, effective planning and design, third-party construction oversight, and nimble adaptive management. Bad weather can also delay project completion, but good planning and construction management will minimize the impact. Operating entities receiving funding will have to document strong operation and management capabilities and financial resources to assure long-term project success.

The Council has expressed its commitment to using BAS to consider relative sea level rise, increasing threats to water quality and water quantity and other risks as it makes coastal restoration funding decisions. Reconnecting natural drainage pathways and restoring natural sheet flows will improve coastal estuarine habitats that in turn provide added shoreline protection from storms and hurricanes. Reconnecting natural drainage pathways and restoring salinity regimes are critical processes that allow the system to respond to future perturbations through natural physical and biological adjustments, enabling riverine ecosystems to evolve and continue to function in response to shifting system drivers (e.g., climate change) (Beechie et al. 2010).

As part of project selection, the THRP will encourage resiliency and adaptation planning in the E&D for selected projects. FDEP is aware that climate change effects are dynamic and reliable responses, and new technologies to address the effects are being and will continue to be developed. The THRP is committed to considering project resiliency and climate change adaptation throughout the 10-year lifespan of the program.

Monitoring and Adaptive Management:

Monitoring will be conducted on two levels: programmatic and project specific. Programmatic monitoring will focus on the programmatic metric specified below. At the project level, monitoring will be targeted toward the projects metrics listed below and will be specific to resource outcomes. Project-specific monitoring will validate restoration techniques and BMPs and will inform lessons learned applicable to future projects. Combined programmatic and project-level monitoring will be conducted in order to understand, document, and analyze how well projects perform compared to the expected outcomes and to provide lessons learned to help guide future project selection and adapt the THRP to ensure its goals and objectives are achieved. Monitoring at the project level will be guided by the project (e.g., acres with restored hydrology, acres with reduced impacts, acres acquired in fee, etc.). Hydrologic restoration can be monitored using a variety of techniques such water level recorders, flow monitoring gauges, as-built drawing with surveys elevations, etc., depending on specific project objectives and site characteristics. Under the THRP, projects will be required to submit a monitoring and adaptive

management plan. These plans should be based on existing, peer-reviewed guidance documents, such as the NRDA MAM Manual and Council Observational Data Plan Guidance (Council 2018; DWH NRDA Trustees 2017). The monitoring outlined in these plans will be for both long- and short-term outcomes. Potential examples of these outcomes include:

Long-term outcomes:

- Evaluation of long-term water quality and salinity trends. This requires multiple years of data collection following specific project implementation, including an evaluation of historical and baseline data for affected areas, as available.
- Evaluation of long-term trends affecting key habitats and communities, including seagrass, tidal marshes, and shellfish.
- Monitoring and evaluation of site stability and resilience. Coastal restoration sites will be monitored to evaluate effects of public use, seasonal conditions, erosion or accretion, and major storm events.

Short-term outcomes:

- Acres or miles restored. These metrics can be based on models or construction as-built surveys.

Data Management:

FDEP will provide a central location to access data and other information related to the projects funded under the THRP and make it available to the Council, regional partners, stakeholders, and any person or entity upon request. An Observational Data Plan and Data Management Plan for the THRP will be submitted to the Council.

Data will be collected pursuant to approved QA plans. All data collected, analyzed, and reported will comply with Chapter 62-160, FAC (Quality Assurance) and will be documented using standardized project-specific datasheets, as appropriate. Handwritten hardcopy data will be scanned to PDF files and transcribed into a standard digital format. QA plans will specify minimum field and laboratory quality assurance, methodology, reporting, auditing, and data usability requirements. Data will be input into WIN, the Watershed Information Network (https://floridadep.gov/dear/watershed-servicesprogram/content/winstoret). WIN provides a platform for data providers to submit their data and perform data quality checking interactively prior to allowing the data to be migrated into the published WIN environment. WIN is used to store and manage data and to report data to interested users and the EPA). Data can be accessed through a web-based search program at http://prodenv.dep.state.fl.us/DearWin/public/welcomeGeneralPublic?calledBy=GENERALPUBLIC. FDEP will utilize the RESTORE MEtadata Records Library and Information Network for metadata records creation.

Collaboration:

Through the CPS process, meetings were held with local governments, WMDs, NEPs, NGOs, Florida's RESTORE Act COE, the Gulf Consortium, and other Council members. Additionally, SWIM plans and MFLs have extensive stakeholder outreach during plan development and throughout implementation, including numerous public meetings and public education materials. Project selection will consider each project's ability to leverage other funds to expand the impact of awards. These monies could include other DWH funds or other federal, state, or local government matching funds, Florida's State Revolving Fund loans and grants, annual springs funding, TMDL project funding, NPS grants, Florida legislative member project funding, WMD cooperative funding, the Gulf Consortium SEP, the Gulf Coast Counties'

MYIPs, Florida Gulf Coast NEP CCMPs, Panhandle Estuary Program future CCMPs, and potentially those projects and programs identified in the Governor's EO.

Public Engagement, Outreach, and Education:

Under Florida's SWIM and MFL programs, public engagement and education activities are routinely conducted as part of plan development, identification of watershed stressors and healthy flow requirements in water bodies, and potential solutions. These efforts have focused on many of the stressors targeted by the THRP, allowing the program and its proposed projects to make connections with the public as the result of previous engagement and education efforts. MFL establishment requires data collection and technical analysis before draft MFLs are issued. Outreach materials are provided and public participation occurs during the draft MFL process, peer review, and rule adoption for a given waterway (NWFWMD n.d.b.).

Existing programs such as SWIM and MFLs have built a strong foundation for public engagement and education to encourage continued participation in the THRP and ensure that the value of selected projects reaches a large audience. Furthermore, the previous involvement of communities in SWIM and MFL programs increases the likelihood of meaningful public engagement and comments during the development of THRP project selection criteria.

In addition, ongoing public outreach as part of DWH NRDA restoration efforts began in 2012, with over 60 projects in Florida to date. This includes the recently issued FTIG Restoration Plan #1, which directed NRDA funds to water quality, nutrient reduction, and recreational enhancements (FTIG 2019). The NRDA's rigorous public engagement process affords stakeholders and other interested parties opportunities to submit projects via a Florida-maintained web portal, comment on projects at the draft Restoration Plan stage, and comment on proposed projects. Florida also embarked on a large public outreach campaign as part of its GEBF Gulf Restoration Strategy development (FFWC and FDEP 2018). The THRP will utilize the existing successful DWH public engagement structure without expending a great deal of the THRP administrative budget on these efforts.

Leveraging:

Funds: TBD
Type: Bldg on Others
Status: Proposed
Source Type: Other
Description: The THRP may potentially leverage funds at the project level from other federal and state including SEP, NPS 319, WQ grants SW, NRDA. The selection criteria put greater emphasis on projects that leverage other funding sources. Therefore, although the program itself is not leveraging other funds, individual projects will be expected to do so. See Methods section for a description of selection criteria.

Environmental Compliance:

Some aspects of the THRP comply with NEPA using the Council's NEPA CE for planning, research, or design activities (Section 4(d)(3) of the Council's NEPA procedures). Selected implementation projects will be required to comply with all applicable federal laws in the Council's Environmental Checklist and state and local laws. Because Council NEPA regulations allow the use of member NEPA CEs where

appropriate (Section 4(d)(4) of the Council's NEPA procedures), selected project NEPA compliance will occur using the appropriate documentation (EAs, EISs, or CEs). Some projects may rely on existing member NEPA documents, including CEs (e.g., NOAA 6.03b.3(b)(2)). Actions to restore historic habitat hydrology, where increased risk of flood or adverse fishery impacts are not significant; restoration of tidal or non-tidal wetland inundation (e.g., through enlargement, replacement, or repair of existing culverts) or through modification of existing tide gates).

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Budget

Project Budget Narrative:

The budget for this program consists of $13,750,000, of which the majority (approximately 90%) will be spent on planning or implementation of projects or activities aimed at improving hydrology in coastal watersheds of the Gulf Coast. The total amount of funding approved as Category 1 is $3,437,500 and the total amount of funding listed as Category 2 is $10,312,500. The Category 1 funds will be spent on State of Florida program administration and project or activity specific Planning, E&D and permitting. Program monitoring and adaptive management activities, and data management activities will also fall under Category 1. Category 2 funds will be used to implement projects or activities such as construction of culverts, low water crossings, storage reservoirs, or land acquisition, and will include project or activity specific monitoring and adaptive management activities, and data management activities. More detailed budgets will be developed at the project or activity level when projects or activities are selected for funding under this program, including an appropriate contingency. The percentages listed below apply to the entire $13,750,000 budget.

Total FPL 3 Project/Program Budget:

$ 13,750,000.00

Estimated Percent Monitoring and Adaptive Management: 2 %
Estimated Percent Planning: 15 %
Estimated Percent Implementation: 75 %
Estimated Percent Project Management: 7 %
Estimated Percent Data Management: 1 %
Estimated Percent Contingency: 0 %

Environmental Compliance

Environmental Requirement	Has the Requirement Been Addressed?	Compliance Notes (e.g., title and date of document, permit number, weblink etc.)
National Environmental Policy Act	Yes	Section 4(d)(3) of the Council's NEPA procedures applies to Category 1 funds for planning.
Endangered Species Act	N/A	
National Historic Preservation Act	N/A	
Magnuson-Stevens Act	N/A	
Fish and Wildlife Conservation Act	N/A	
Coastal Zone Management Act	N/A	
Coastal Barrier Resources Act	N/A	
Farmland Protection Policy Act	N/A	
Clean Water Act (Section 404)	N/A	
River and Harbors Act (Section 10)	N/A	
Marine Protection, Research and Sanctuaries Act	N/A	
Marine Mammal Protection Act	N/A	
National Marine Sanctuaries Act	N/A	
Migratory Bird Treaty Act	N/A	
Bald and Golden Eagle Protection Act	N/A	
Clean Air Act	N/A	
Other Applicable Environmental Compliance Laws or Regulations	N/A	

Maps, Charts, Figures

Figure 1: The THRP boundary which includes all 5-digit HUC8 watersheds that flow to the Gulf of Mexico.

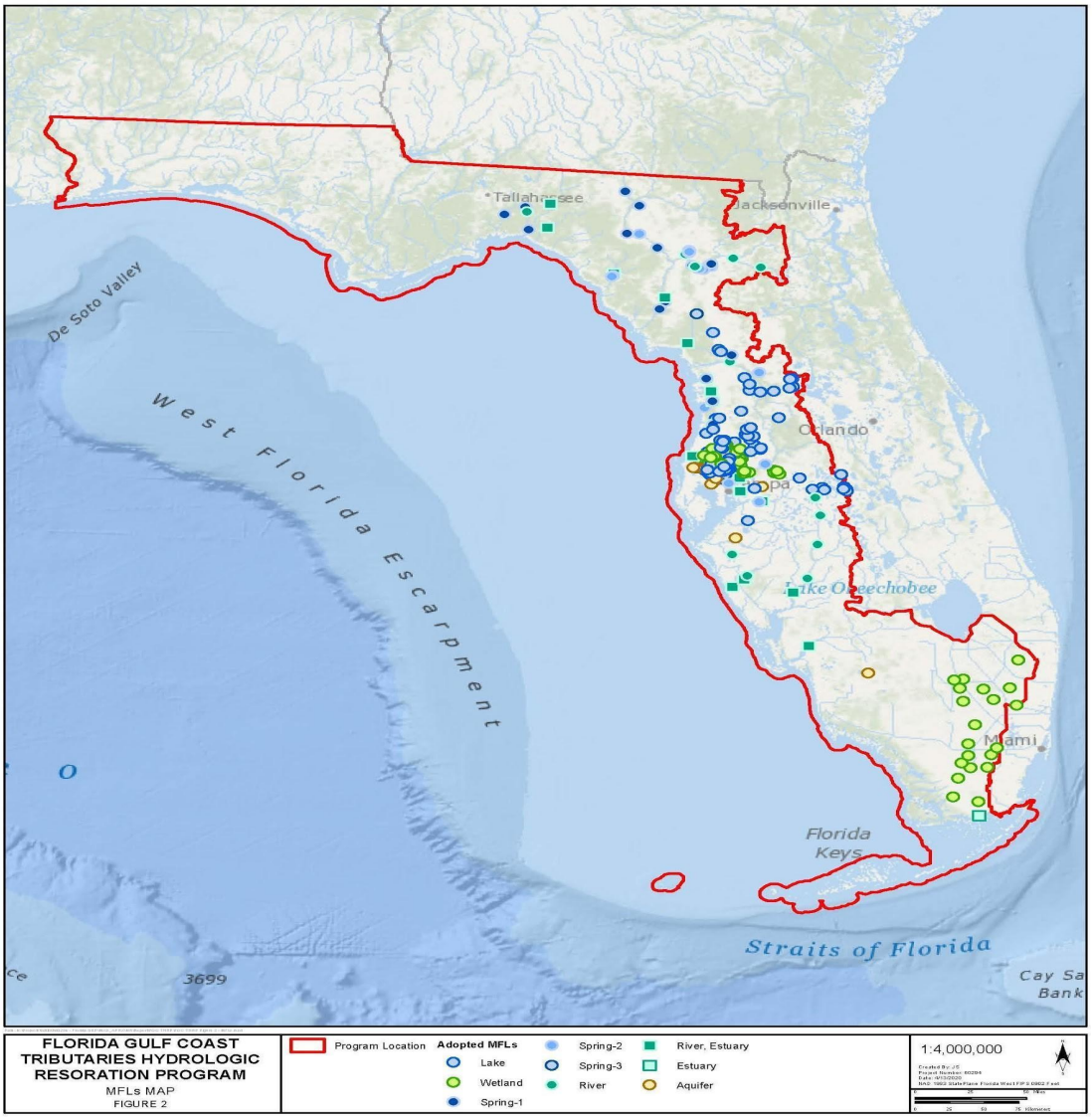

Figure 2: The THRP boundary with all 5-digit HUC8 watersheds that flow to the Gulf of Mexico shows designated MFLs for rivers, lakes, springs, wetlands and estuaries within the program boundaries.

Table of Abbreviations and Acronyms for THRP	
BAS	best available science
BMAP	Basin Management Action Plan
BMP	best management practice
CCMP	comprehensive conservation management plan
CE	Categorical Exclusion
COE	Center of Excellence
Council	Gulf Coast Ecosystem Restoration Council
CPS	Comprehensive Plan Commitment and Planning Support
DMP	data management plan
DWH	Deepwater Horizon
EA	environmental assessment
E&D	Engineering and Design
EIS	environmental impact statement
EO	Executive Order
EPA	Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FFWC	Florida Fish and Wildlife Commission
FFWCC	Florida Fish & Wildlife Conservation Commission
FPL 3	Funding Priority List 3
FS	Florida Statutes
FTIG	Florida Trustee Implementation Group
GEBF	Gulf Environmental Benefit Fund

Table of Abbreviations and Acronyms for THRP	
GIS	geographic information system
HUC	hydrologic unit code
ISO	International Organization for Standardization
lbs.	pounds
LID	Low Impact Development
MAM	Monitoring and Adaptive Management
MFL	minimum flow level
MYIP	Multi-Year Implementation Plan
N	nitrogen
NEP	National Estuary Programs
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Federation
NGO	nongovernmental organization
NNC	numeric nutrient criteria
NOAA	National Oceanic and Atmospheric Administration
NPS	nonpoint source
NRDA	Natural Resource Damage Assessment
NWFWMD	Northwest Florida Water Management District
SAP	State Adaptation Plan
SAV	submerged aquatic vegetation
SB	Senate Bill
SEP	State Expenditure Plan
SWFWMD	Southwest Florida Water Management District
SWIM	Surface Water Improvement and Management

Table of Abbreviations and Acronyms for THRP	
THRP	Tributaries Hydrologic Restoration Program
TMDLs	total maximum daily loads
U.S.	United States
USDA	U.S. Department of Agriculture
WMDs	Water Management Districts
WQIP	Water Quality Improvement Program