

RESTORE Council FPL 3 Proposal Document

General Information

Proposal Sponsor:

State of Florida Department of Environmental Protection

Title:

Florida Gulf Coast Tributaries Hydrologic Restoration Program

Project Abstract:

Florida, through the Florida Department of Environmental Protection (FDEP), is requesting \$15M in Council-Selected Restoration Component funding for the proposed Florida Gulf Coast Tributaries Hydrologic Restoration Program (THRP). This would include \$3.75M in planning funds as FPL Category 1, as well as a separate \$11.25M implementation component as an FPL Category 2 priority for potential funding. The THRP would support 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 would be considered under this program.

The THRP would 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 would 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 proposed 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 would 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 would ensure, collectively, that they would 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(St. Johns) - St. Johns(Oklawaha)
South Atlantic-Gulf Region(St. Johns) - St. Johns(Lower St. Johns)
South Atlantic-Gulf Region(Southern Florida) - Kissimmee(Kissimmee)
South Atlantic-Gulf Region(Southern Florida) - Kissimmee(Western Okeechobee Inflow)
South Atlantic-Gulf Region(Southern Florida) - Southern Florida(Lake Okeechobee)
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(Southern Florida) - Southern Florida(Florida Southeast Coast)
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 - Broward
FL - Escambia
FL - Pasco
FL - Calhoun
FL - Pinellas
FL - Charlotte
FL - Citrus
FL - Clay
FL - Collier
FL - Columbia
FL - Dixie
FL - Franklin
FL - Gadsden
FL - Gilchrist
FL - Polk
FL - Putnam
FL - Sarasota
FL - Sumter
FL - Suwannee
FL - Taylor
FL - Union
FL - Wakulla
FL - Alachua
FL - Baker
FL - Bay
FL - Bradford
FL - Glades
FL - Gulf
FL - Hamilton
FL - Santa Rosa
FL - Walton
FL - Washington
FL - DeSoto
FL - Hardee
FL - Hernando
FL - Highlands
FL - Hillsborough
FL - Holmes
FL - Jackson
FL - Jefferson
FL - Lake
FL - Lee
FL - Leon
FL - Levy
FL - Liberty

FL - Madison
FL - Manatee
FL - Marion
FL - Miami-Dade
FL - Monroe
FL - Okaloosa
FL - Palm Beach
FL - Hendry

Congressional District(s):

FL - 3
FL - 21
FL - 14
FL - 15
FL - 8
FL - 26
FL - 11
FL - 23
FL - 13
FL - 20
FL - 16
FL - 18
FL - 5
FL - 12
FL - 22
FL - 1
FL - 19
FL - 25
FL - 2
FL - 9
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 would 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 would 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 would 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 this program proposal. 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 would 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: \$15,000,000. Projects that leverage other funding sources would 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.

Proposed 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 would 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 would 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) would 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 would 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 setup 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 would 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 proposal.
- **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 would 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 would 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 would 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 would prioritize the funding of hydrologic restoration projects identified in MFL recovery strategies. These projects would 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 would 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 (NFWFMD 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 proposes 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 would be determined as the number 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 would be determined to capture the benefits of each technique utilized under this program; specifically, each project or activity selected under the THRP would 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 proposes 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 would be determined as the total number of acres acquired in fee. The purpose of this metric would be to verify that acquisition has been completed, and the performance measure would be an executed and recorded deed. Upon transfer of the parcel to Government ownership, this metric would be complete. The outcome would be an increase in protected acres.

Risk and Uncertainties:

Projects come with potential risks and uncertainties, including cost overruns and public controversy. Risks would 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 would minimize the impact. Operating entities receiving funding would 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 as 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-services-program/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 would 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 (NFWMD 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 proposed THRP would 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 can 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).

Bibliography:

American Ground Water Trust (AGWT). 2003. Groundwater and River Flow. The American Well Owner, 2003, No. 3.

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.

Boutwell, J.L. and J.V. Westra. 2016. The Role of Wetlands for Mitigating Economic Damage from Hurricanes. *Journal of the American Water Resources Association (JAWRA)* 52(6):1472-1481. DOI: 10.1111/1752-1688.12473.

Deepwater Horizon (DWH) Natural Resource Damage Assessment (NRDA) Trustees. 2017. Monitoring and Adaptive Management Procedures and Guidelines Manual Version 1.0. Appendix to Trustee Council Standard Operating Procedures for Implementation of the Natural Resource Restoration for the DWH Oil Spill. <http://www.gulfspillrestoration.noaa.gov/>.

Fling, H.E., N.G. Aumen, T. Armentano, and F.J. Mazzotti. 2018. The Role of Flow in the Everglades Landscape. CIR 1452. Wildlife Ecology and Conservation Department, University of Florida/Institute of Food and Agricultural Sciences Extension. <https://edis.ifas.ufl.edu/pdf/files/UW/UW19900.pdf>.

Florida Administrative Code. 2018. Department of Environmental Protection. 62-160. Quality Assurance. <http://flrules.elaws.us/fac/62-160>.

Florida Department of Environmental Protection (FDEP). (FDEP). 2019. Blue-Green Algae Task Force Consensus Document #1. https://floridadep.gov/sites/default/files/Final%20Consensus%20%231_0.pdf.

———. 2018. 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.

———. 2020. About DEP. <https://floridadep.gov/about-dep>.

Florida Fish and Wildlife Conservation Commission (FFWCC) and Florida Department of Environmental Protection (FDEP). 2018. Florida Gulf Environmental Benefit Fund Restoration Strategy. <https://floridadep.gov/sites/default/files/Gulf%20Environmental%20Benefit%20Fund%20Restoration%20Strategy%20Report%20FINAL.pdf>.

Florida Trustee Implementation Group (FTIG). 2019. Gulf Spill Restoration. Florida Restoration Page. <https://www.gulfspillrestoration.noaa.gov/restoration-areas/florida>.

Forbes, L. 2012. Natural channel design – A case for a new paradigm in open channel management strategies for Australia. Proceedings of Sharing Knowledge, Planning the Future: OzWater. Australian Water Association.

Gulf Coast Ecosystem Restoration Council (Council). 2016. Comprehensive Plan Update 2016: Restoring the Gulf's Ecosystem and Economy. https://www.restorethegulf.gov/sites/default/files/CO-PL_20161208_CompPlanUpdate_English.pdf.

———. 2018. Observation Data Plan, Draft Interim Guidance. <https://www.restorethegulf.gov/gcerc-grants-office/gcerc-grants-resources>.

———. 2019. Gulf Coast Ecosystem Restoration Council Planning Framework.
https://www.restorethegulf.gov/sites/default/files/508_PlanningFramework_Final_201908.pdf.

Northwest Florida Water Management District (NFWFMD). n.d.a. Restoration of Salinity Patterns Upper Apalachicola Bay through Reconnection of Severed Historic Watershed Drainage Pathways.
http://masgc.org/assets/uploads/publications/15-045_Apalachicola.pdf.

———. n.d.b. Overview: Minimum Flows & Minimum Water Levels.
<https://www.nfwfwater.com/Water-Resources/Minimum-Flows-Minimum-Water-Levels>.

Sklar, F., and J. Browder. 1998. Coastal environmental impacts brought about by alterations to freshwater flow in the Gulf of Mexico. *Environmental Management* 22:547–562.
<https://doi.org/10.1007/s002679900127>.

Sophocleious, M. 2002. Interactions between groundwater and surface water: the state of the science. *Hydrogeology Journal* 10(1):52-67.

Southwest Florida Water Management District (SWFWMD). 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>.

U.S. Environmental Protection Agency (EPA). 2007. National Management Measures to Control Nonpoint Source Pollution from Hydromodification. EPA 841-B-07-002. July.

Winter, T.C. 1995. Recent Advances in Understanding the Interaction of Groundwater and Surface Water. *Review of Geophysics* 33(S):985-994.

Woessner, W. W. 2000. Stream and Fluvial Plain Ground Water Interactions: Rescaling Hydrogeologic Thought. *Ground Water* 38(3):pp. 423-429.

Budget

Project Budget Narrative:

The budget for this proposed program consists of \$15,000,000, of which the majority (approximately 90%) would 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 requested as Category 1 is \$3,750,00 and the total amount of funding requested as Category 2 is \$11,250,000. The Category 1 funds would 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 would also fall under Category 1. Category 2 funds would be used to implement projects or activities such as construction of culverts, low water crossings, storage reservoirs, or land acquisition, and would 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 \$15,000,000 funding request.

Total FPL 3 Project/Program Budget Request:

\$ 15,000,000.00

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 %

Is the Project Scalable?:

Yes

If yes, provide a short description regarding scalability.:

The THRP could be scaled to allow for more or less activities over a longer or shorter duration of time. Scaling down the program would reduce the number of miles or acres of tributaries and habitats restored.

Environmental Compliance¹

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	Note not provided.
National Historic Preservation Act	N/A	Note not provided.
Magnuson-Stevens Act	N/A	Note not provided.
Fish and Wildlife Conservation Act	N/A	Note not provided.
Coastal Zone Management Act	N/A	Note not provided.
Coastal Barrier Resources Act	N/A	Note not provided.
Farmland Protection Policy Act	N/A	Note not provided.
Clean Water Act (Section 404)	N/A	Note not provided.
River and Harbors Act (Section 10)	N/A	Note not provided.
Marine Protection, Research and Sanctuaries Act	N/A	Note not provided.
Marine Mammal Protection Act	N/A	Note not provided.
National Marine Sanctuaries Act	N/A	Note not provided.
Migratory Bird Treaty Act	N/A	Note not provided.
Bald and Golden Eagle Protection Act	N/A	Note not provided.
Clean Air Act	N/A	Note not provided.
Other Applicable Environmental Compliance Laws or Regulations	N/A	Note not provided.

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

Maps, Charts, Figures

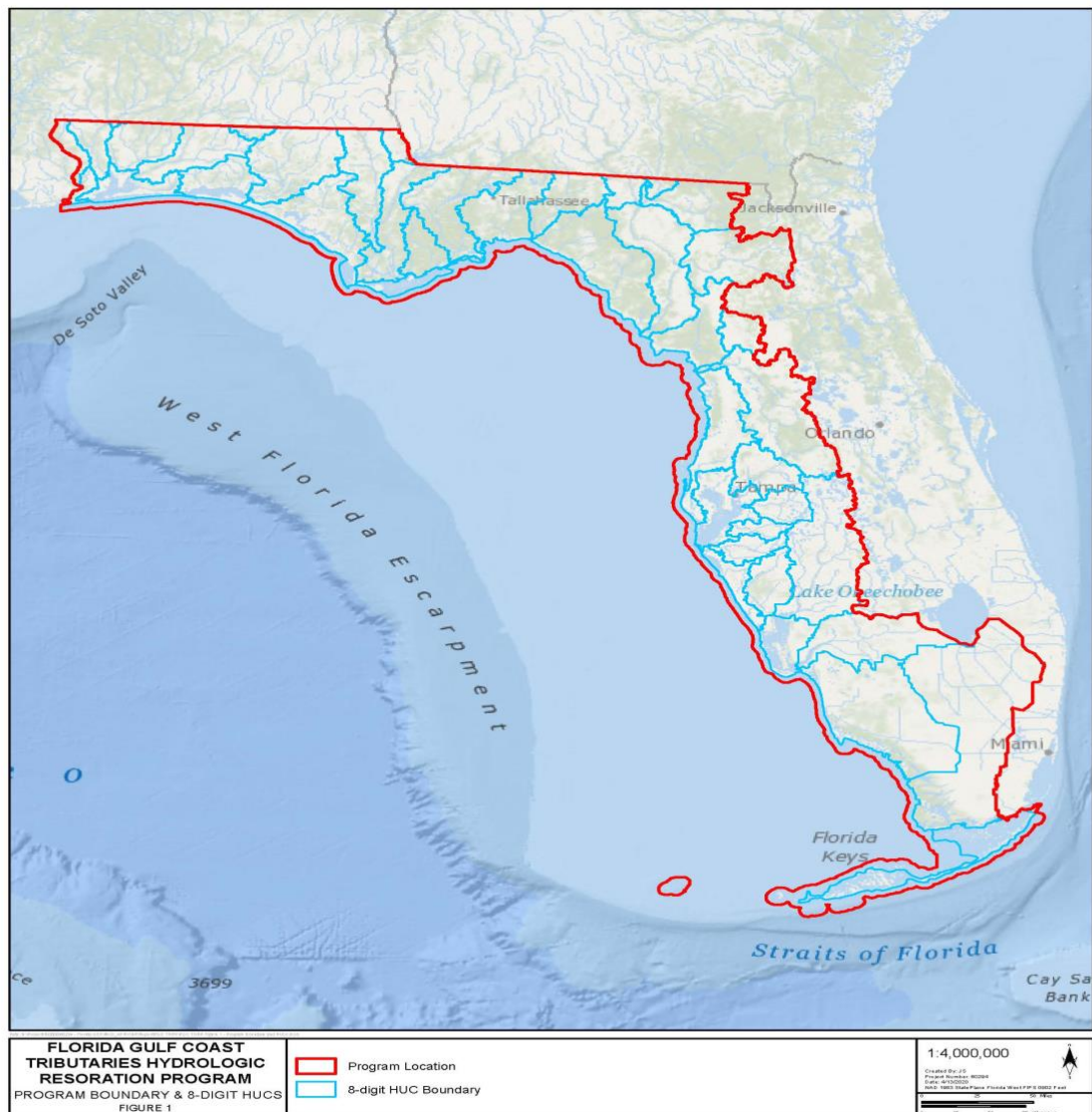


Figure 1 depicts the THRP boundary which includes all 5-digit HUC8 watersheds that flow to the Gulf of Mexico.

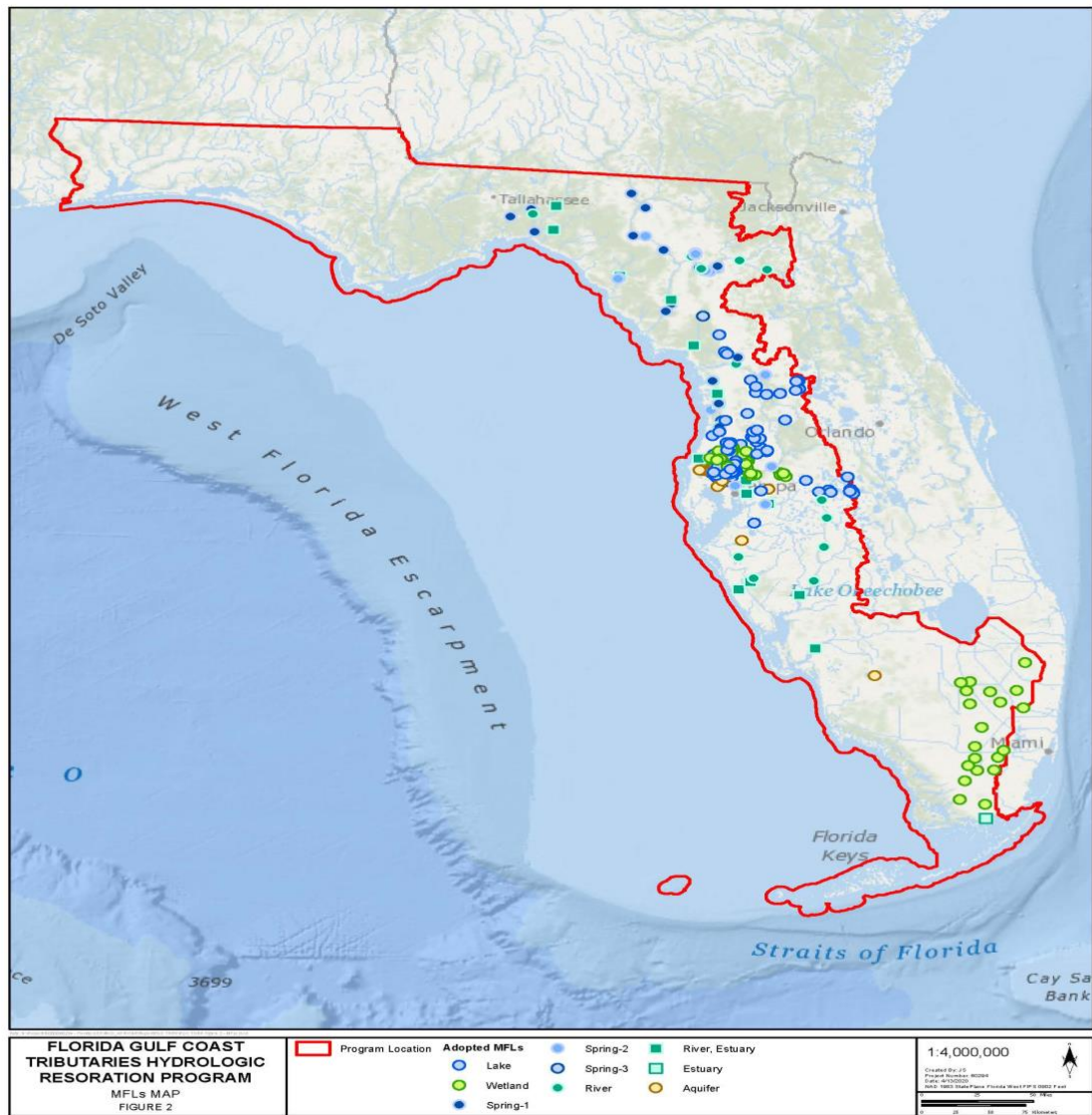


Figure 2 depicts the THRP boundary with all 5-digit HUC8 watersheds that flow to the Gulf of Mexico shows designated MFLs for rivers, lakes, springs, wetlands and estuaries within the program boundaries.

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
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
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

RESTORE Council FPL 3 Proposal Document

General Information

Proposal Sponsor:

Florida Department of Environmental Protection

Title:

Florida Gulf Coast Tributaries Hydrologic Restoration Program

Project Abstract:

Florida is requesting \$15 million under the Council's FPL 3 for the proposed Florida Gulf Coast Tributaries Hydrologic Restoration Program (THRP, see Table of Acronyms attached). The proposed THRP would restore and protect water resources throughout the Florida Gulf Coast (Fig.1) by underwriting intrinsically linked high-priority hydrologic improvement projects (i.e., canal plugging, restoring natural dimensions of tidal passes/inlets, restoring/reconnecting wetlands, installing erosion control or water control structures, etc.) Planning (Cat 1) and implementation (Cat 2) projects proposed in Florida watersheds that drain to the Gulf of Mexico would be considered under this program for the next 10 years.

The proposed THRP will achieve the goal of restoring water quality/quantity and the objective to restore, improve, and protect water resources through a comprehensive suite of projects. Success of the THRP would improve flow regime dynamics, nutrient cycling, salinity gradients, wildlife habitat and biodiversity, and recreational experiences and may help reduce algal blooms and fish kills. The THRP framework would 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.

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?:

No

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 proposed 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 would 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 would ensure, collectively, that they would 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(St. Johns) - St. Johns(Oklawaha)
South Atlantic-Gulf Region(St. Johns) - St. Johns(Lower St. Johns)
South Atlantic-Gulf Region(Southern Florida) - Kissimmee(Kissimmee)
South Atlantic-Gulf Region(Southern Florida) - Kissimmee(Western Okeechobee Inflow)
South Atlantic-Gulf Region(Southern Florida) - Southern Florida(Lake Okeechobee)
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(Southern Florida) - Southern Florida(Florida Southeast Coast)
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 - Broward
FL - Escambia
FL - Pasco
FL - Calhoun
FL - Pinellas
FL - Charlotte
FL - Citrus
FL - Clay
FL - Collier
FL - Columbia
FL - Dixie
FL - Franklin
FL - Gadsden
FL - Gilchrist
FL - Polk
FL - Putnam
FL - Sarasota
FL - Sumter
FL - Suwannee
FL - Taylor
FL - Union
FL - Wakulla
FL - Alachua
FL - Baker
FL - Bay
FL - Bradford
FL - Hendry

FL - Glades
FL - Gulf
FL - Hamilton
FL - Santa Rosa
FL - Walton
FL - Washington
FL - DeSoto
FL - Hardee
FL - Hernando
FL - Highlands
FL - Hillsborough
FL - Holmes
FL - Jackson
FL - Jefferson
FL - Lake
FL - Lee
FL - Leon
FL - Levy
FL - Liberty
FL - Madison
FL - Manatee
FL - Marion
FL - Miami-Dade
FL - Monroe
FL - Okaloosa
FL - Palm Beach

Congressional District(s):

FL - 3
FL - 21
FL - 14
FL - 15
FL - 8
FL - 26
FL - 11
FL - 13
FL - 20

FL - 16
FL - 5
FL - 12
FL - 22
FL - 1
FL - 19
FL - 25
FL - 2
FL - 9
FL - 17

Narratives

Introduction and Overview:

Under the THRP, hydrologic and salinity conditions along the Gulf Coast would 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.

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). 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 would 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 would 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 this program proposal. 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 would 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: \$15,000,000. Projects that leverage other funding sources would 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.

Proposed 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 would 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, and water quality at these locations will positively influence the overall system. Water quality/quantity modeling would 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) would 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 would 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. 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 would 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 proposal.
- **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 would 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 would 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 would 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 would prioritize the funding of hydrologic restoration projects identified in MFL recovery strategies. These projects would 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 would 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 (NFWFMD 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 : Habitat Restoration

Target: TBD

Narrative: Florida proposes 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 would be determined as the number 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 would be determined to capture the benefits of each technique utilized under this program; specifically, each project or activity selected under the THRP would have specific metrics aimed at evaluating the success of the individual activity.

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

Target: TBD

Narrative: Florida proposes 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 would be determined as the total number of acres acquired in fee. The purpose of this metric would be to verify that acquisition has been completed, and the performance measure would be an executed and recorded deed. Upon transfer of the parcel to Government ownership, this metric would be complete. The outcome

would be an increase in protected acres.

Metric Title: HM006 : Habitat management and stewardship - Acres under improved management : Habitat Management

Target: TBD

Narrative: Florida proposes 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. The purpose of this metric is to verify that the acreage acquired or placed under conservation easement is being managed for conservation purposes. Once a project or activity is selected a target value will be established. The performance measure would be a management plan for parcels acquired under fee simple or a recorded conservation easement agreement with appropriate conservation language. The outcome would be an increase in acres under improved management practices.

Risk and Uncertainties:

Projects come with potential risks and uncertainties, including cost overruns and public controversy. Risks would 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 would minimize the impact. Operating entities receiving funding would 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-services-program/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 would 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 (NFWFMD 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 proposed THRP would 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 can 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).

Bibliography:

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.

Boutwell, J.L. and J.V. Westra. 2016. The Role of Wetlands for Mitigating Economic Damage from Hurricanes. *Journal of the American Water Resources Association (JAWRA)* 52(6):1472-1481. DOI: 10.1111/1752-1688.12473.

Deepwater Horizon (DWH) Natural Resource Damage Assessment (NRDA) Trustees. 2017. Monitoring and Adaptive Management Procedures and Guidelines Manual Version 1.0. Appendix to Trustee Council Standard Operating Procedures for Implementation of the Natural Resource Restoration for the DWH Oil Spill. <http://www.gulfspillrestoration.noaa.gov/>.

Fling, H.E., N.G. Aumen, T. Armentano, and F.J. Mazzotti. 2018. The Role of Flow in the Everglades Landscape. CIR 1452. Wildlife Ecology and Conservation Department, University of Florida/Institute of Food and Agricultural Sciences Extension. <https://edis.ifas.ufl.edu/pdffiles/UW/UW19900.pdf>.

Florida Administrative Code. 2018. Department of Environmental Protection. 62-160. Quality Assurance. <http://flrules.elaws.us/fac/62-160>.

Florida Department of Environmental Protection (FDEP). (FDEP). 2019. Blue-Green Algae Task Force Consensus Document #1. https://floridadep.gov/sites/default/files/Final%20Consensus%20%231_0.pdf.

———. 2018. 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.

———. 2020. About DEP. <https://floridadep.gov/about-dep>.

Florida Fish and Wildlife Conservation Commission (FWCC) and Florida Department of Environmental Protection (FDEP). 2018. Florida Gulf Environmental Benefit Fund Restoration Strategy. <https://floridadep.gov/sites/default/files/Gulf%20Environmental%20Benefit%20Fund%20Restoration%20Strategy%20Report%20FINAL.pdf>.

Florida Trustee Implementation Group (FTIG). 2019. Gulf Spill Restoration. Florida Restoration Page. <https://www.gulfspillrestoration.noaa.gov/restoration-areas/florida>.

Forbes, L. 2012. Natural channel design – A case for a new paradigm in open channel management strategies for Australia. Proceedings of Sharing Knowledge, Planning the Future: OzWater. Australian Water Association.

Gulf Coast Ecosystem Restoration Council (Council). 2016. Comprehensive Plan Update 2016: Restoring the Gulf's Ecosystem and Economy. https://www.restorethegulf.gov/sites/default/files/CO-PL_20161208_CompPlanUpdate_English.pdf.

———. 2018. Observation Data Plan, Draft Interim Guidance. <https://www.restorethegulf.gov/gcerc-grants-office/gcerc-grants-resources>.

———. 2019. Gulf Coast Ecosystem Restoration Council Planning Framework. https://www.restorethegulf.gov/sites/default/files/508_PlanningFramework_Final_201908.pdf.

Northwest Florida Water Management District (NFWFMD). n.d.a. Restoration of Salinity Patterns Upper Apalachicola Bay through Reconnection of Severed Historic Watershed Drainage Pathways. http://masgc.org/assets/uploads/publications/15-045_Apalachicola.pdf.

———. n.d.b. Overview: Minimum Flows & Minimum Water Levels. <https://www.nwfwater.com/Water-Resources/Minimum-Flows-Minimum-Water-Levels>.

Sklar, F., and J. Browder. 1998. Coastal environmental impacts brought about by alterations to freshwater flow in the Gulf of Mexico. *Environmental Management* 22:547–562. <https://doi.org/10.1007/s002679900127>.

Southwest Florida Water Management District (SWFWMD). 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>.

U.S. Environmental Protection Agency (EPA). 2007. National Management Measures to Control Nonpoint Source Pollution from Hydromodification. EPA 841-B-07-002. July.

Budget

Project Budget Narrative:

The budget for this proposed program consists of \$15,000,000, of which the majority (approximately 90%) would 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 requested as Category 1 is \$3,750,00 and the total amount of funding requested as Category 2 is \$11,250,000. The Category 1 funds would 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 would also fall under Category 1. Category 2 funds would be used to implement projects or activities such as construction of culverts, low water crossings, storage reservoirs, or land acquisition, and would 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 \$15,000,000 funding request.

Total FPL 3 Project/Program Budget Request:

\$ 15,000,000.00

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 %

Is the Project Scalable?:

Yes

If yes, provide a short description regarding scalability.:

The THRP could be scaled to allow for more or less activities over a longer or shorter duration of time. Scaling down the program would reduce the number of miles or acres of tributaries and habitats restored.

Environmental Compliance¹

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	Note not provided.
National Historic Preservation Act	N/A	Note not provided.
Magnuson-Stevens Act	N/A	Note not provided.
Fish and Wildlife Conservation Act	N/A	Note not provided.
Coastal Zone Management Act	N/A	Note not provided.
Coastal Barrier Resources Act	N/A	Note not provided.
Farmland Protection Policy Act	N/A	Note not provided.
Clean Water Act (Section 404)	N/A	Note not provided.
River and Harbors Act (Section 10)	N/A	Note not provided.
Marine Protection, Research and Sanctuaries Act	N/A	Note not provided.
Marine Mammal Protection Act	N/A	Note not provided.
National Marine Sanctuaries Act	N/A	Note not provided.
Migratory Bird Treaty Act	N/A	Note not provided.
Bald and Golden Eagle Protection Act	N/A	Note not provided.
Clean Air Act	N/A	Note not provided.
Other Applicable Environmental Compliance Laws or Regulations	N/A	Note not provided.

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

Maps, Charts, Figures



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

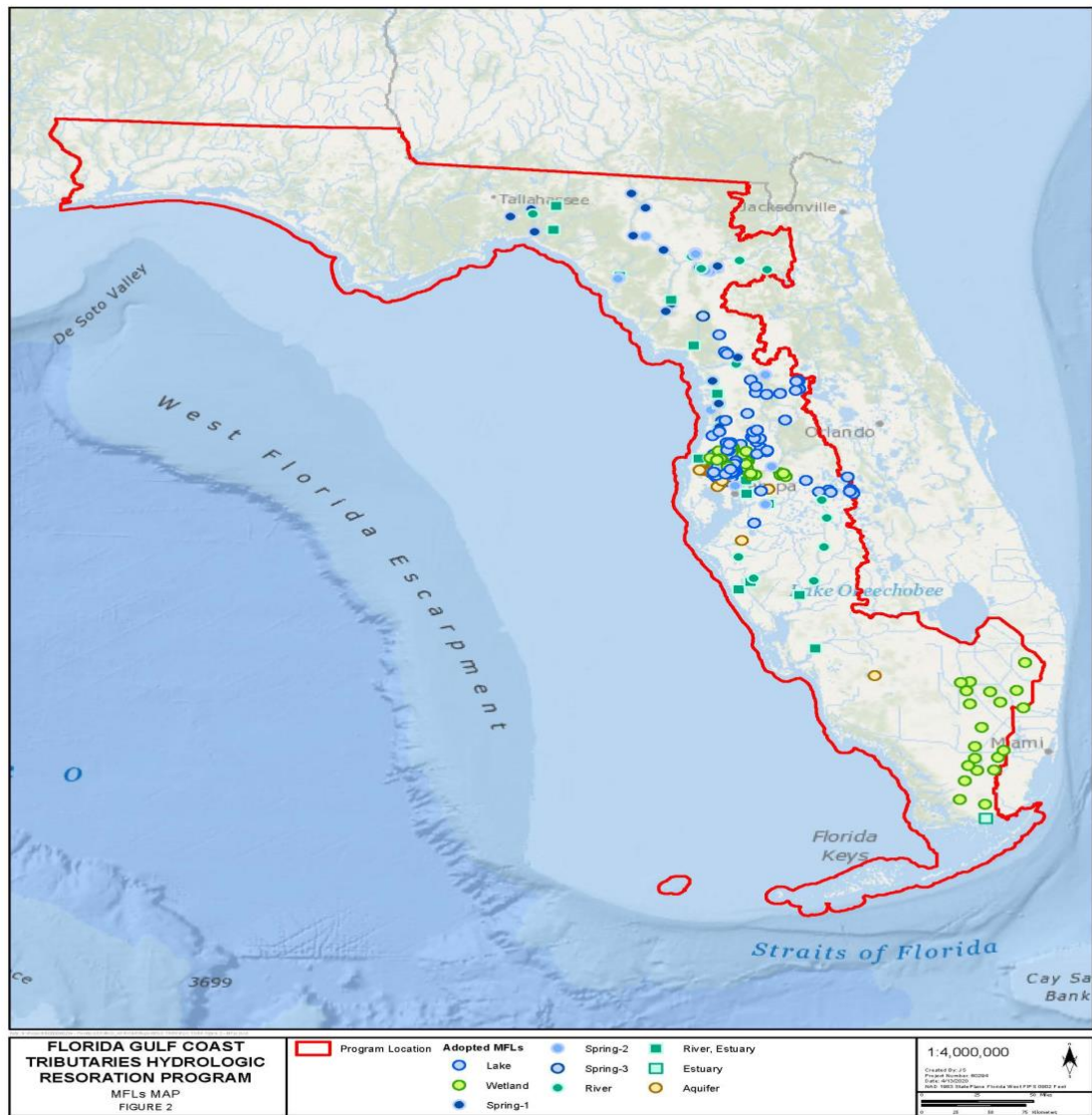


Figure 2 depicts the THRP boundary with all 5-digit HUC8 watersheds that flow to the Gulf of Mexico shows designated MFLs for rivers, lakes, springs, wetlands and estuaries within the program boundaries.

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
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
THRP	Tributaries Hydrologic Restoration Program
TMDLs	total maximum daily loads
U.S.	United States
USDA	U.S. Department of Agriculture
WMDs	Water Management Districts

Table of Abbreviations and Acronyms for THRP	
WQIP	Water Quality Improvement Program

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

Project/Program	Florida Gulf Coast Tributaries Hydrologic Restoration Program		
Primary Reviewer	Heather Young	Sponsor	Florida
EC Reviewer	Heather Young	Co-Sponsor	
1. Is/Are the selected Priority Criteria supported by information in the proposal?			Yes
Notes			
2. Does the proposal meet the RESTORE Act geographic eligibility requirement?			Yes
Notes			
3. Are the Comprehensive Plan primary goal and primary objective supported by information in the proposal?			Yes
Notes			
4. Planning Framework: If the proposal is designed to align with the Planning Framework, does the proposal support the selected priority approaches, priority techniques, and/or geographic area?			Yes
Notes			
5. Does the proposal align with the applicable RESTORE Council definition of project or program?			Yes
Notes			
6. Does the budget narrative adequately describe the costs associated with the proposed activity?			More information needed
Notes	Council staff recommend the sponsor revise the answer to the question "Is this a construction project?" from "no" to "yes" since a portion of the requested funding may be put toward construction (e.g., construction of culverts, low water crossings, storage reservoirs).		
7. Are there any recommended revisions to the selected leveraged funding categories?			No

Notes	
8. Have three external BAS reviews been completed?	More information needed
Notes	Please see the external BAS review comments, and external reviews summary attached with these review comments.
9. Have appropriate metrics been proposed to support all primary and secondary goals?	More information needed
Notes	The primary goal is supported by the proposed metrics. However, because bringing land under improved management has been incorporated into the description of RESTORE Council metric "HC003 - acres acquired in fee," Council staff suggest that metric "HM006 - Acres under improved management" is redundant and can be removed.
10. Environmental compliance: If FPL Category 1 has been selected for the implementation component of the project or program, does the proposal include environmental compliance documentation that fully supports the selection of Category 1?	N/A
Notes	The sponsor is seeking funding approval (FPL Category 1) for the planning components of this program. The implementation component is listed as FPL Category 2. The Council can use its planning Categorical Exclusion to address NEPA for approval of planning funds. Subsequent FPL amendment(s) will be needed to approve implementation funding for this program. At that time, the sponsor would need to provide evidence of compliance with all environmental laws applicable to funding approval for the given project(s).
11. Geospatial Compliance: Have the appropriate geospatial files and associated metadata been submitted along with a map of the proposed project/program area?	Yes
Notes	

FPL 3a BAS Review Summary – Florida Gulf Coast Tributaries Hydrologic Restoration Program

May 2020

Overall the external Best Available Science reviews for the *Florida Gulf Coast Tributaries Hydrologic Restoration Program* proposal are positive. All reviewers agree that the proposal is based on science that uses peer-reviewed data supporting the current state of knowledge about hydrologic alterations in coastal watersheds of Florida. Reviewers recognize that the scientific basis of this program stems from previous investments presented in technical reports on the condition of coastal waters. The reviewers agree the supporting literature and reports used to justify this project are appropriate for application on the Florida Gulf Coast. There is general consensus the project has clearly defined programmatic goals and objectives based on valid selection criteria.

Reviewers agree that the projects to be selected under this program have been identified as candidate restoration actions in existing reports and evaluated previously through scientific assessments. The general selection criteria presented in the proposal are viewed as science-based and will be supported by policies that promote data quality and integrity. While this program does not provide detailed restoration actions that lend to specific peer reviewed literature, the reviewers confirm the references used to justify this program are presented in an unbiased manner and are based on publicly available reports that include extensive bibliographies of pertinent literature. They acknowledge the theoretical need for restoring natural drainage pathways as necessary actions for ecosystem restoration. These needs are well documented in agency reports addressing hydrologic degradation such as minimum flows and levels or total maximum daily load limits for water bodies that are referenced by this proposal.

In the evaluation of risk, the reviewers acknowledge this program is designed to select future projects and therefore most risks and uncertainties, other than costs, controversy or climate change, will more accurately be identified when specific projects are selected. However, they do acknowledge the proposal does address mitigation of risks by encouraging projects that focus on adaptation and resiliency, and will implement the use of monitoring and adaptive management to navigate risks to achieve project objectives. The science based selection criteria presented in the proposal includes feasibility, identification of risks and discussion of mitigation measures that are likely to serve as a mechanism for evaluating short-term and long-term risks at the project level. Reviewer 1, however, does acknowledge that there could be more discussion of risks contained within the supporting literature. While this proposal does not include specific projects, Reviewers 1 and 2 point out that success or failures of existing programs were not directly mentioned in the proposal.

All reviewers agree the Florida Department of Environmental Protection has a strong record of implementing similar programs and much of the criteria for selecting projects is based on these existing, or past programs. They recognize this proposal plans to leverage those existing programs such as minimum flows and levels analysis, surface water improvement management and basin management action programs to help achieve program objectives.

As this is a program that will solicit projects if awarded RESTORE Council funds, the reviewers recognize detailed scientific methods for restoration projects are not possible in review of this proposal. There is agreement among reviewers that the broad goals and objectives of this program are science-based and the proposed project selection and associated monitoring will follow the processes of existing programs. Reviewer 1 does note the program methods did not describe how projects will be solicited and what organizations will develop them.

The impetus for proposing this program is understood by the reviewers to be the stressor of “hydromodifications” throughout the Florida Gulf Coast hydrologic system. The identified modifications include roads, levees, flood control and drainage structures along with reduced flows. The outcomes from the overall program are supported by targeted actions to ameliorate these modifications to improve natural flow to restore coastal environments and improve ecosystem resilience. Reviewer 1 does raise the issue that groundwater flow was not addressed in the proposal as it plays a substantial role in freshwater discharge due to there being limited surface water runoff in the Big Bend region south to Tampa Bay.

There is general agreement that the measures of success proposed were appropriate for the program level assessment of projects that would be implemented. There is emphasis by Reviewer 1 for highlighting the importance of project level monitoring plans in the evaluation of subsequent projects to be implemented.

FDEP Summary Response to FPL 3b BAS Review Comments (May 2020) on Florida Gulf Coast Tributaries Hydrologic Restoration Program (THRP) Proposal

Florida Department of Environmental Protection (FDEP) was pleased to receive overall positive external Best Available Science (BAS) reviews for this Florida Gulf Coast Tributaries Hydrologic Restoration Program (TRHP) proposal. All reviewers agree that the proposal is based on BAS that uses peer-reviewed data supporting the current state of knowledge about hydrologic alterations in coastal watersheds of Florida, and that FDEP has a strong record of implementing similar programs. The BAS reviewers noted where additional clarification could be added to strengthen the THRP proposal.

Risks – Reviewer 1, acknowledged that there could be more discussion of risks contained within the supporting literature. Reviewer 1 also noted the nature of THRP does not lend itself to analyses of specific detailed peer reviewed literature, and that most risks and uncertainties would occur depending on the projects selected. As such, these risks and uncertainties would be evaluated on a project specific basis as projects are screened and selected. The Reviewer noted the risks and uncertainties of the projects to be funded by the THRP are based on sound science. Therefore, no change to the THRP is proposed to address this comment.

Program Successes or Failures - While this proposal does not include specific projects, Reviewers 1 and 2 point out that success or failures of existing programs were not directly mentioned in the proposal. Reviewer 1 noted that project success or failure was not provided for the two specific projects mentioned in the proposal (Lee County's North East Caloosahatchee Tributaries Restoration Project and Collier County's Comprehensive Watershed Improvement Program). Both are currently in the planning or permitting stages and were provided as examples of large-scale hydrologic projects which the THRP would consider and may provide implementation funds in the future. They were not intended as examples of program or project success or failure. As such no change to the proposal is needed. Reviewer 3 noted other State programs that are related to the THRP, but that no formal assessment of successes or failures of these other programs was provided. No change was made to the proposal in response to this comment. A formal assessment of all the other financial assistance programs mentioned on the proposal would be lengthy and is outside the scope of development of this proposal. All reviewers agree the FDEP has a strong record of implementing programs similar to THRP

Project Solicitation - Reviewer 1 does note the program methods did not describe how projects will be solicited and what organizations will develop them. FDEP would initiate a call for projects to the public concurrent with the issuance of the final project selection criteria, which is the process used by FDEP during Deepwater Horizon Natural Resource Damage Assessment (NRDA) restoration planning. Any entity may submit a proposal for consideration. FDEP currently uses a project portal for their Deepwater Horizon project solicitations (<https://floridadep.gov/wra/deepwater-horizon>). We may use this, or a similar portal to facilitate the solicitation and submission of projects proposed under THRP. We have made minor revisions to the Proposed Methods section of the proposal to address this comment.

Groundwater Flows - Reviewer 1 does raise the issue that groundwater flow was not addressed in the proposal as it plays a substantial role in freshwater discharge due to there being limited surface water runoff in the Big Bend region south to Tampa Bay. We agree with this comment. Concurrent restoration of natural groundwater flow regimes and interactions with surface water in any hydrologic restoration project are critical to achieving sustainable watershed/estuary hydrology in coastal areas

and would be considered in the evaluation of projects submitted for consideration under THRP. There is a large body of literature on groundwater and surface water interactions and their ecological implications as identified in comprehensive literature reviews by AGWT (2003) Sophocleous (2002), Woessner (2000), and Winter (1995). We have revised the proposal to note these ground and surface water interactions, and that projects that promote groundwater recharge and raising groundwater levels would be considered under the THRP.

Gulf Coast Ecosystem Restoration Council

FPL 3b Internal Best Available Science Review Panel Summary

July 2020

Introduction

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

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

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

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

Sponsor: Florida

Florida Gulf Coast Tributaries Hydrologic Restoration Program

Feedback from the panel on the proposal sponsor's presentation of comments and responses to those comments, and any additional BAS concerns:

Risks: There could be more discussion of risks contained within the supporting literature.

- The BAS panel agrees that Florida has appropriately addressed this comment.

Lessons learned: Successes or failures of existing programs were not directly mentioned in the proposal.

- A panelist raised an alternative interpretation of this comment, and suggested how it might also be addressed.
- Florida response: Florida will follow-up with the panelist to discuss this interpretation.
- The BAS panel agrees that Florida has appropriately addressed this comment.

Project solicitation: The program methods did not describe how projects will be solicited and what organizations will develop them.

- The BAS panel agrees that Florida has appropriately addressed this comment.

Groundwater flows: Groundwater flow was not addressed in the proposal but plays a substantial role in freshwater discharge due to there being limited surface water runoff in the Big Bend region south to Tampa Bay.

- The BAS panel agrees that Florida has appropriately addressed this comment.

Other: A panelist shared appreciation for the statement in the proposal that the final project list and workplans will be submitted to Council staff for BAS review and approval. The panelist suggests that all FPL 3 program proposals include such language regarding BAS review.

Panel comments on existing or future synergies with proposed activity:

Panel members had no further comments on proposal synergies.



SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Florida Gulf Coast Tributaries Hydrologic Restoration Program
Location (If Applicable): Florida
Council Member Bureau or Agency: State of Florida Department of Environmental Protection
Type of Funding Requested: Planning / Implementation

Reviewed by: Reviewer 1
Date of Review: May 4, 2002

Best Available Science:

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

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Yes
Comments:	
The nature of this THRP proposal – essentially to be a clearinghouse for multiple restoration projects, does not lend itself to analyses of specific detailed peer reviewed literature. The primary sources of background information come from a myriad of reports on prior projects – both completed and planned – accomplished by the FDEP. These reports, which are easily accessed through the web, include extensive bibliographies to the pertinent peer-reviewed literature that justify this project.	

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Choose an item.
Comments:	
I cannot answer yes or no to this question because the entire proposal directly addresses the Gulf coast region, specifically terrestrial drainages to the coast.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
As mentioned above, most literature cited in the proposal consists of reports and documents related to gulf coast restoration projects and evaluations from the FDEP. Their citations are accurate and as they are essentially self-citations, the citations are fair and unbiased.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
To the extent possible, this proposal evaluates risks and uncertainties. However, because the proposal is designed to select future projects, most risks and uncertainties will occur depending on the projects selected. The proposal recognizes the issue of inability to identify those risks prior to selection, but does not identify what specific potential risks or describes potential methods for mitigating or minimizing those risks within individual projects. Recognized general risks include cost overruns, public controversy, and effects of climate change on project completions or efficacy.	

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

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer- reviewed and publicly available data?	Yes
Comments:	
The need for developing restorations projects along Florida's Gulf Coast is well documented in cited reports, such as MFL and TMDLs developed by the FDEP. Each of these reports has extensive bibliographies that relate to regional issues as well as more universal environmental knowledge.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	Yes
Comments:	
Most of the justification for this proposal is contained within agency documents that are readily accessible and contain good citations to the peer-reviewed literature. The focus of projects to be screened as part of the THRP program will include large scale hydrologic restoration projects that have previously been identified through thorough scientific evaluations.	

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

Although the proposal's scientific basis is well established in the supported documents and reports, there is insufficient information within the proposal about discussion of risks in those documents to evaluate if the reports include information about potential risks (I have only perused the supporting reports). The risks and uncertainties of the projects to be funded through the THRP project, however, are based on sound science – for example, impacts from increased storm intensity and frequency, sea level rise, and public controversies related to the restoration projects.

Science Context Evaluation:

Question A	
Has the project/program sponsor or project partners demonstrated experience in implementing a project/program similar to the one being proposed?	Yes
Comments:	
The FDEP has a strong record of implementing programs similar to the one proposed, including partnering with multiple other state agencies with specific expertise such as the water management districts and the FWC. Projects successfully completed and on-going by various state agencies include MFL analyses, which are all peer reviewed, many SWIM projects, and BMAP projects which are developed in partnership with a variety of non-governmental groups.	

Question B	
Does the project/program have clearly defined goals objectives?	Yes
Comments:	
The THRP program is designed to organize, foster, and support projects that will aid in restoration of upland, estuary, and marine systems along the Florida Gulf Coast. The selection criteria for picking those project is clearly laid out to ensure the projects are eligible, technically sound, feasible, and ready to be initiated with leveraged funding.	

Question C

Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	Yes
Comments:	
The THRP program proposal outlines four steps for identifying the best projects that will enhance and restore physical, chemical, and biological linkages between upland, estuary, and marine ecological systems. The one thing I see lacking from the proposal is the way in which those projects will be solicited. Although the selection criteria are clearly laid out, how projects, and the groups who will develop and execute those projects, will be recruited was not described. Prior experience of FDEP in handling such projects suggests recruitment is unlikely to be a problem.	

Question D	
Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Yes
Comments:	
The stressors for the Florida Gulf Coast hydrologic systems are clearly documented including alterations to flow patterns from constructed structures – roads, levees etc , flood control and drainage structures and flow reduction for flood mitigation. These structures alter freshwater flows and salinity regimes along the coast. Benefits of restoration of the natural flow and estuarine salinity include improvement and/or restoration of benthic communities, oysters, seagrasses, and fish.	

Question E	
Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	Yes
Comments:	
Metrics of success are clearly outline based on three primary activities of the projects. For hydrology restoration, the metric will be based on acres with restored hydrology and salinity. Additional metrics for this category would depend on the specific projects. For land acquisition, metric of success will be based on the number of acres “acquired in fee”, while ensuring that the acquisition deeds are recorded. For habitat management and stewardship, the metric of success would be development of management plans including conservation language for the acquired land or conservation easement land.	

Question F	
Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
The proposal describes multiple general long term risks including climate change, sea level rise, and public controversy. The THRP program also lists as a criterion for funding that individual projects would identify risks to the project success. Another criterion for funding is project proposals should include discussion of ways to mitigate the potential risks.	

Question G	
Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
The project identifies certain short term risks including weather delays to construction, cost overruns and public controversy. As with long term risks, individual projects applying to this program will be required to identify short-term potential risks and mitigation strategies. Overall, the short term risks will be minimized through adaptive management including effective planning and design, careful cost estimates, and documented operation and management capabilities and financial resources of third party operators.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Yes
Comments:	

The most up to date information on environmental restoration of Florida's Gulf Coast originates from various Florida environmental studies including MFL, TMDL, BMAPs, and the SWIM program. Many of these are administered by FDEP or the water management districts. This proposal recognizes the findings derived from these programs, and the THRP, to be administered by the FDEP, will likely continue to stay abreast of findings from future programs.

Question I

Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	Need more information
---	-----------------------

Comments:

Because there is no specific projects outlined in this proposal, there are no past successes or failures of a similar type of effort. However, the FDEP mission, as describe in the proposal, is to institute programs to protect and improve water quality and aquatic resources. Specific projects are cited including Caloosahatchee Tributaries Resotration Project and Collier County's Comprehensive Watershed Improvement Program as derived from MFL and SWIM plans, although the success or failure of these specific projects are not provided in the proposal.

Question J

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

Comments:

Monitoring will occur both at the THRP program level as well as for individual projects. At the project level, monitoring will evaluate acres of restored hydrology,with reduced impacts, or acres acquired. Monitoring at the project level may also include physicochemical parameters such as water level,flow and water quality parameters such as salinity, and key habitats and communities, depending on the specific goals of the projects. These project level monitoring plans constitute an important factor in evaluation of potential projects. Data management will be conducted by FDEP as part of its program oversight. The central storage facility for data management will be the Watershed Information Network website, hosted by the FDEP.

Please summarize any additional information needed below:

This proposal does not define specific projects to be supported, and instead describes a method to develop a large scale program that will develop a series of projects to restore and protect water resources of Florida Gulf Coast. The proposal lays out a framework of criteria to be used to select the projects, although it does not describe a method to request proposals for the projects to be developed. The FDEP has a strong background in development and support of similar projects at the state level and thus should be a capable manager of the program. Examples of projects to be evaluated include processes such as canal plugging, restoring tidal passes/inlets, restoring and reconnecting wetlands, installing erosion control or water control structures. All of the projects ultimately will be designed to restore hydrologic connectivity and natural salinity from upland to estuary and marine systems. Although the projects to be included in this program are mostly comprehensive, one issue that seems to lack a specific mention, although it could be lumped into “hydrologic connectivity” is the role that groundwater plays in the hydrologic connectivity of Florida’s Gulf Coast. In the Big Bend region south to around Tampa Bay, only limited surface water runoff occurs (mostly the Suwannee River) and freshwater discharge is either directly from point sources at springs, from short spring runs from springs located a few miles inland, or as seepage from non-point source locations. The dominance of groundwater inputs to a large chunk of the Gulf Coast suggests that a mention, however slight, of how projects dealing with groundwater would be developed and/or how such projects would be incorporated into other project aimed largely at surface water restorations would have been important.



SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Florida Gulf Coast Tributaries Hydrologic Restoration Program
Location (If Applicable): Florida
Council Member Bureau or Agency: State of Florida Department of Environmental Protection
Type of Funding Requested: Planning / Implementation

Reviewed by: Reviewer 2
Date of Review: 5/09/2020

Best Available Science:

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

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Yes
Comments:	
Peer reviewed and publicaly available information is referenced throughout the beginning of the proposal.	

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Yes
Comments:	
The majority of references are directly related to the Florida Gulf Coast. References with a wider geographic application are directly relevant to the proposal narrative.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
A review of the cited sources suggest the applicant has correctly represented their sources. It should be noted that several places throughout the applicant cites both the original document and another source that cites it. This is unnecessary.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
The proposal identifies two types of risks and uncertainties: 1) administrative, such as cost overruns, public controversy and 2) natural, such as weather.	

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

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer-reviewed and publicly available data?	Yes
Comments:	
The applicant includes some peer-reviewed literature and many government reports that support the theoretical framework (i.e. restoring natural drainage pathways/patterns) is necessary for ecosystem protection and restoration.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	Yes
Comments:	
The proposal specifically refers to QA (which promotes data quality and integrity) within the data management plan. The applicant references existing government programs to support their scientific approach and methods.	

Question C	
Has the applicant provided reasonable justification that the proposal is based on science that clearly documents and communicates risks and uncertainties in the scientific basis for such projects/programs?	Yes
Comments:	
The proposal both addresses potential risks and uncertainties and provides mechanisms for communicating with the public. The proposal also establishes short- and long-term assessment mechanisms. Both of these approaches will decrease minimize risk overall.	

Science Context Evaluation:

Question A	
Has the project/program sponsor or project partners demonstrated experience in implementing a project/program similar to the one being proposed?	Yes
Comments:	
The applicant (FEP) specifically references similar programs for which they have oversight. The criteria they have established for selecting projects is based on existing programs.	

Question B	
Does the project/program have clearly defined goals objectives?	Yes
Comments:	
The objective is to fund projects that will help restore natural hydrologic connections between the gulf and coastal uplands.	

Question C	
Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	Yes
Comments:	
As stated above the methods – project selection and monitoring – follow existing programs and the applicant has aligned their plan with Restoration Council objectives.	

Question D	
Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Yes
Comments:	
The proposal discusses “hydromodification” i.e. the engineering of natural waterflow due to human infrastructure as the underlying environmental stressor. The benefits identified are the restoration of coastal environments and improved resiliency to natural disasters or climate change.	

Question E	
Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	Need more information
Comments:	
Specific project metrics are discussed as short- and long-term outcomes for the funded projects. Statistical information is not discussed.	

Question F	
Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
The proposal specifically addresses sea-level rise and indirectly address climate, as weather. The applicant suggests that the funded projects will at least in part mitigate some of the risks by increasing resiliency of coastal wetlands/natural hydrologic pathways.	

Question G	
Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
The applicant addresses both weather concerns that could delay project progress and public controversy. They plan to engage the public through both planning and implementation parts of the proposed work in order to promote community buy-in and decrease controversy.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Need more information
Comments:	
At least one of the general references (Forbes, 2012) is obscure – this reviewer could not find a copy available through academic and general search engines. There are many other sources (including EPA and USGS reports) that would support their point.	

Question I	
Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	Need more information
Comments:	
The proposal does reference other existing programs that are at least tangentially related in the region, but there is no formal assessment of successes and failures.	

Question J	
Has the project/program identified a monitoring and data management strategy that will support project measures of success (i.e., metrics). If so, is appropriate best available science justification provided? If applicable, how is adaptive management informed by the performance criteria? (Captures statistical information requirement a defined by the RESTORE Act)	Yes
Comments:	
The proposal has a concise data management plan that will leverage existing platforms. This will make the data available to “interested users.” The applicant might consider using more open access platforms like the CUASHI water data portal. The proposal also includes information about data quality assurance.	



Please summarize any additional information needed below:
<p>The applicants provide excellent citations from government agencies/programs to support their science, but there are many peer-reviewed and publically available documents that support the their larger framework that could have been cited in support of their project.</p> <p>For example – Nagy, et al. 2012. Effects of urbanization on stream hydrology and water quality: the Florida Gulf Coast.</p>



SCIENCE EVALUATION

Bucket 2: Comprehensive Plan Component

Proposal Title: Florida Gulf Coast Tributaries Hydrologic Restoration Program
Location (If Applicable): Florida
Council Member Bureau or Agency: State of Florida Department of Environmental Protection
Type of Funding Requested: Planning / Implementation

Reviewed by: Reviewer 3
Date of Review: May 3, 2020

Best Available Science:

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

Question 1.	
Have the proposal objectives, including proposed methods, been justified using peer reviewed and/or publicly available information?	Yes
Comments:	
The proposed work seeks to identify and fund projects focused on increasing hydrological connectivity in Gulf coast watersheds in Florida. The criteria for project selection is based on science outlined in Forbes 2012, references in the 2010 SWFWMD, science put forth in Beechie et al 2010, and prior restoration guidance such as GEBF and NRDA, FFWCC and FDEP 2018.	

Question 2.	
If information supporting the proposal does not directly pertain to the Gulf Coast region, are the proposal's methods reasonably supported and adaptable to that geographic area?	Yes
Comments:	
Cited references for work outside of the Gulf Coast regions, such as Forbes 2012, are reasonable scientific studies that provide background on the impacts of connectivity loss and goals for restoration.	

Question 3.	
Are the literature sources used to support the proposal accurately and completely cited? Are the literature sources represented in a fair and unbiased manner?	Yes
Comments:	
The literature cite is relevant and supports the proposed work. Additional references would be possible to support both the impacts of loss of hydrological connectivity and restoration. Many of these references may not be publically accessible for individuals and institutions without paid subscriptions to scientific journals. The references cited do indicate an understand and plan to use science based criteria.	

Question 4.	
Does the proposal evaluate uncertainties and risks in achieving its objectives over time? (e.g., is there an uncertainty or risk in the near- and/or long-term that the project/program will be obsolete or not function as planned?)	Yes
Comments:	
Selection Criteria 3 addresses Feasibility and on page 11 the proposal addresses "Risk and Uncertainties". Two of the main risks identifies are cost overruns and public controversy. This risk will be minimized through public engagement and project management. Scientific risks associated with future environmental changes, such as sea level rise, will be managed by encouraging project that focus on adaptation and resiliency. The Monitoring and Adaptive Management section address both long- and short-term outcomes.	

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

Question A	
Has the applicant provided reasonable justification that the proposal is based on science that uses peer- reviewed and publicly available data?	Yes
Comments:	
The proposal list science-based goals derived from both peer-reviewed science and agency prepared guidance documents for environmental and hydrological restoration.	

Question B	
Has the applicant provided reasonable justification that the proposal is based on science that maximizes the quality, objectivity, and integrity of information (including, as applicable, statistical information)?	Yes
Comments:	
The proposal outlines 4 main selection criteria proposed for determining funding for projects. Both the 2nd (Technical Basis and Justification) and 3rd (Feasibility) have science-based criteria.	

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

Section of the proposal directly address both feasibility criteria and a discussion of risk and uncertainty.

Science Context Evaluation:

Question A

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

Yes

Comments:

In the section "Commitments" the proposal highlights that the proposed work aligns with the FDEP fundamental mission of protecting and improving water quality. Additionally, the proposal plans to leverage existing projects taking advantage of broader expertise and oversight.

Question B

Does the project/program have clearly defined goals objectives?

Yes

Comments:

Goals/Objectives are presented on page 6, there are selection criteria on pages 8 and 9, and metrics for measuring success are provided on pgs 10 and 11.

Question C

Has the proposal provided a clear description of the methods proposed, and appropriate justification for why the method is being selected (e.g., scientifically sound; cost-effectiveness)?	Yes
Comments:	
Detailed scientific methods for the actual restoration efforts is not provided because that will be determined in the individual project selection stage. The broad outlines for the project goals are science-based. The metrics for success provide clear outcomes the proposer would like to achieve in the selection of individual projects.	

Question D	
Does the project/program identify the likely environmental benefits of the proposed activity? Where applicable, does the application discuss those benefits in reference to one or more underlying environmental stressors identified by best available science and/or regional plans?	Yes
Comments:	
Based on the proposed metrics, the key outcomes of the proposed work will be acres of restored hydrology, acres of land acquisition, and acres under improved management. The proposal would be strengthened by providing clearer evidence that the scientific outcomes, such as improved salinity regimes and water quality are directly related to acres of restoration achieve rather than the unique function or impact restored regions have on water quality outcomes. Monitoring of project success is a criteria and the proposed projects are required to outline how the work will improved flow regime dynamics, nutrient cycling, salinity gradients, wildlife habitat and biodiversity.	

Question E	
Does the project/program have measures of success (i.e., metrics) that align with the primary Comprehensive Plan goal(s)/objectives? (Captures the statistical information requirement as defined by RESTORE Act)	Yes
Comments:	
Both the selection criteria (pages 8 and 9) and Metrics(pages 10 and 11) address evaluation criteria for both project selection and evaluation.	

Question F	
Does the proposal discuss the project/program's vulnerability to potential long-term environmental risks (i.e., climate, pollution, changing land use)? (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
Yes. The proposal specifically focuses on adaptation and resiliency as critical selection and planning criteria to address issues such as sea level rise. Additionally, the Monitoring and Adaptive Management section addresses long-term outcomes. The Resiliency goal of Criteria 3 seeks to address these concerns.	

Question G	
Does the project/program consider other applicable short-term implementation risks and scientific uncertainties? Such risks may include the potential for unanticipated adverse environmental and/or socio-economic impacts from project implementation. Is there a mitigation plan in place to address these risks? Any relevant scientific uncertainties and/or data gaps should also be discussed. (Captures risk measures as defined under best available science by the RESTORE Act)	Yes
Comments:	
The project outlines early community engagement to address identification and mitigation of socio-economic impacts. The selection criteria specifically address Feasibility with Risk as sub-criteria. There is also an outline risk and uncertainty section provided on page 11.	

Question H	
Does the project/program consider recent and/or relevant information in discussing the elements above?	Need more information
Comments:	
The proposed work highlights the need to include both long- and short-term risks and changes in the project selection and design process. Since the proposed work is to support the selection and funding of specific projects details of what those project may be and how recent information would impact these risks is not possible. The relevant information likely will vary depending on the proposed region and project and therefore is not provided as this general level.	

Question I	
Has the project/program evaluated past successes and failures of similar efforts? (Captures the communication of risks and uncertainties in the scientific basis for such projects as defined by the RESTORE Act)	Yes
Comments:	
Both Selection Criteria 1 and 2 seek to address the capabilities of the proposing sponsors and the technical basis of the projects. Feasibility including Risk, is to be evaluated in Selection Criteria 3.	

Question J	
Has the project/program identified a monitoring and data management strategy that will support project measures of success (i.e., metrics). If so, is appropriate best available science justification provided? If applicable, how is adaptive management informed by the performance criteria? (Captures statistical information requirement as defined by the RESTORE Act)	Yes
Comments:	
Metrics for project evaluation are provided on pages 10 and 11. A data management plan is outlined on page 12. As part of monitoring and adaptive management the following may be measured: "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 as water level recorders, flow monitoring gauges, as-built drawing with surveys elevations, etc., depending on specific project objectives and site characteristics."	

Please summarize any additional information needed below:
--

[Click here to enter text.](#)