

Coastal and Estuarine Watershed Restoration Priorities

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Submitted by:

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Summary

Following are coastal and estuarine watershed restoration priorities of the Northwest Florida Water Management District (NFWFMD).

Restoration Need	Location	Activity	Cost Estimate
Tates Hell Swamp, New River Basin Hydrologic Restoration	Franklin County	Hydrologic and wetland habitat restoration	\$1,940,000
Bayou Chico Estuarine Restoration	Escambia County	Estuarine restoration; sediment removal	\$8,000,000
Live Oak Point Acquisition and Enhancement	Walton County	Estuarine marsh enhancement; wetland and buffer acquisition	\$1,750,000
Brunson Landing Acquisition and Restoration	Washington County	Conservation land acquisition, restoration, and enhancement	\$1,470,000
Econfina Recharge Area Inholdings Acquisitions	Washington, Bay, and Jackson Counties	Conservation land acquisition and enhancement	\$11,445,000
Wakulla Springs Basin Acquisition	Wakulla County	Conservation lands acquisition; karst/springshed water quality protection	\$5,050,000
Urban Stormwater Retrofits – Pensacola Bay System	Escambia and Santa Rosa Counties	Stormwater treatment; estuarine water quality improvement	\$1,500,000
Urban Stormwater Retrofits – Choctawhatchee Bay	Okaloosa and Walton Counties	Stormwater treatment; estuarine water quality improvement	\$2,100,000
Urban Stormwater Retrofits – St. Andrew Bay	Bay County	Stormwater treatment; estuarine water quality improvement	\$1,700,000
Choctawhatchee Watershed Sedimentation Abatement	Walton, Holmes, Washington, and Jackson Counties	Abatement of sedimentation from unpaved road stream crossings	\$9,000,000

These projects address a number of watershed restoration needs, including hydrologic and wetland restoration, removal of sediments deposited in estuaries and streams, priority habitat preservation and enhancement, and urban stormwater retrofits. Together, implementation of these projects would restore and protect coastal ecosystems and thus help to mitigate adverse environmental effects caused by the Deepwater Horizon oil spill.

Tates Hell Swamp, New River Basin Hydrologic Restoration (Franklin County)

Apalachicola Bay, East Bay, and St. George Sound lie at the terminus of the Apalachicola-Chattahoochee-Flint river system and comprise one of the most undeveloped and productive estuaries in the United States. This estuary serves as a major nursery for ecologically and commercially important species, and it provides a foundation for much of the regional economy. During the 1960s and 1970s, the hydrology of the watershed was severely altered to facilitate silviculture activities. Construction of numerous roads and ditches severed freshwater flow-ways and disrupted natural sheet flow to the estuary, impacting salinity and water quality. This project will reconnect these altered drainage ways, restore natural hydrology and wetland functions, and re-establish the natural salinity regime.

The NFWFMD, in cooperation with the Division of Forestry, developed a Hydrologic Restoration Plan for Tates Hell State Forest (<http://nwfwmdwetlands.com/index.php?Page=30>) and initiated a series of restoration projects within the bay drainage system. To date, five projects have been completed: Big Slough, Sumatra Savannas, and Whiskey George North in the upper reaches of Whiskey George Creek, portions of Doyle Creek, and Sand Beach Branch. Projects in the Pine Log Creek basin, draining to St. George Sound, are in progress.

The proposed project lies within the New River basin, encompassing more than 170 square miles of the forest's largest watershed. The New River flows south and merges with the Crooked River to form the Carrabelle River, which flows into St. George Sound. The hydrologic improvements proposed include 60 low water crossings, 29 flashboard risers, 55 new or replacement culverts, 13 culvert removals, 189 ditch blocks, one bridge, and approximately seven miles of road removal. The proposed project will include a substantial portion of the remainder of the St. George Sound sub-basins and should yield measureable positive results both locally and in the bay system. The estimated construction cost is approximately \$1,940,000.

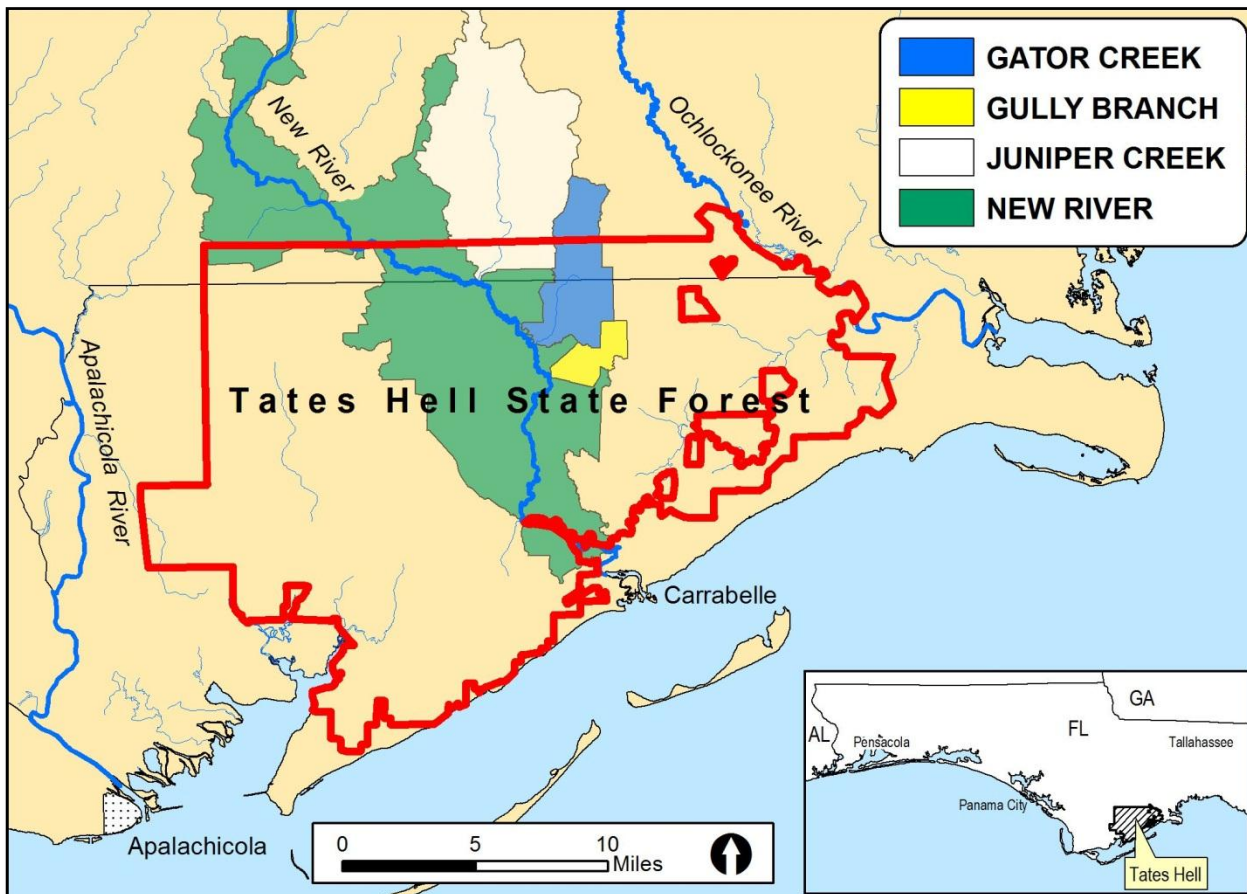


Figure 1. New River Basin Hydrologic Restoration, Franklin County

Bayou Chico Estuarine Restoration (Escambia County)

The NFWMD proposes to build upon past efforts to restore Bayou Chico, a major sub-embayment of Pensacola Bay. Bayou Chico has experienced severe environmental degradation due to historic impacts, including industrial and domestic wastewater discharges, shipyard-related pollution, and long-term stormwater runoff. The wastewater discharges have been substantially addressed, and progress has been made over the last two decades in improving the treatment and management of stormwater runoff. Significant restoration needs remain to be accomplished, however, to allow the bayou to heal and to regain its natural richness and productivity.

This project provides for the dredging and removal of enriched and polluted sediments that have been deposited over many decades of point and nonpoint source discharges. Expected outcomes include restored and greatly improved benthic habitat quality, increased biological diversity and productivity, and improved water quality.

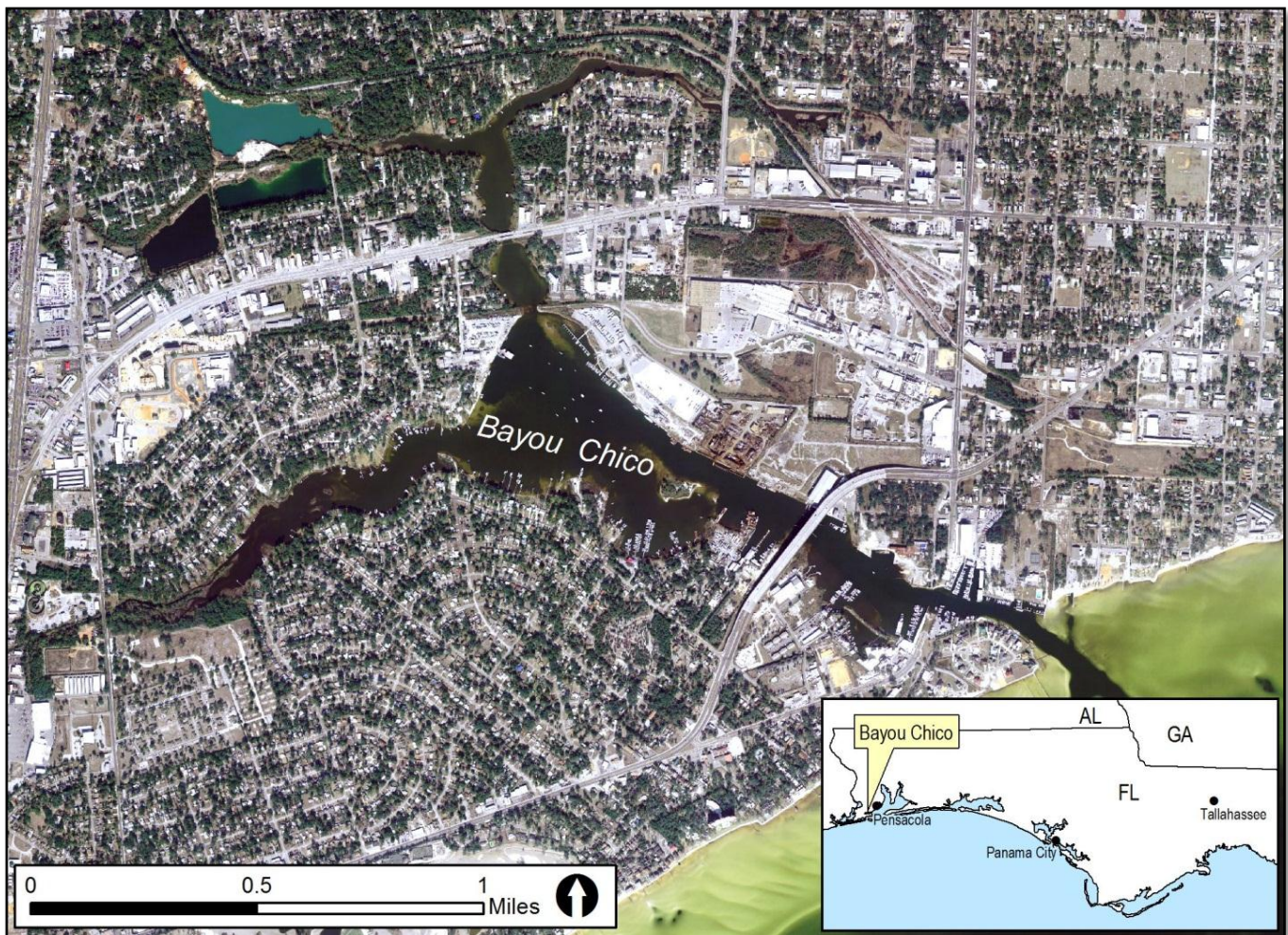


Figure 2. Bayou Chico, Escambia County

It is estimated that the work proposed could be accomplished for approximately \$8,000,000.

Live Oak Point Acquisition and Enhancement (Walton County)

Live Oak Point encompasses the largest salt marsh on Choctawhatchee Bay and borders one of the bay's largest and most ecologically significant bayous. The NFWFMD proposes to complete acquisition of conservation lands on the Live Oak Peninsula within Walton County. Currently, the NFWFMD owns approximately 457 acres. At least 460 acres of adjacent private lands are considered priority acquisition areas. The State of Florida owns an additional 218 acres of adjacent Section 16 lands, which could also be transferred to NFWFMD ownership and management.

The lands proposed for acquisition consist of high quality salt marsh, together with transitional and upland buffer areas that protect water quality and the quality of the salt marsh habitat. Acquisition by the NFWFMD would protect resources on an ecosystem scale, improve land management, and greatly enhance public access.

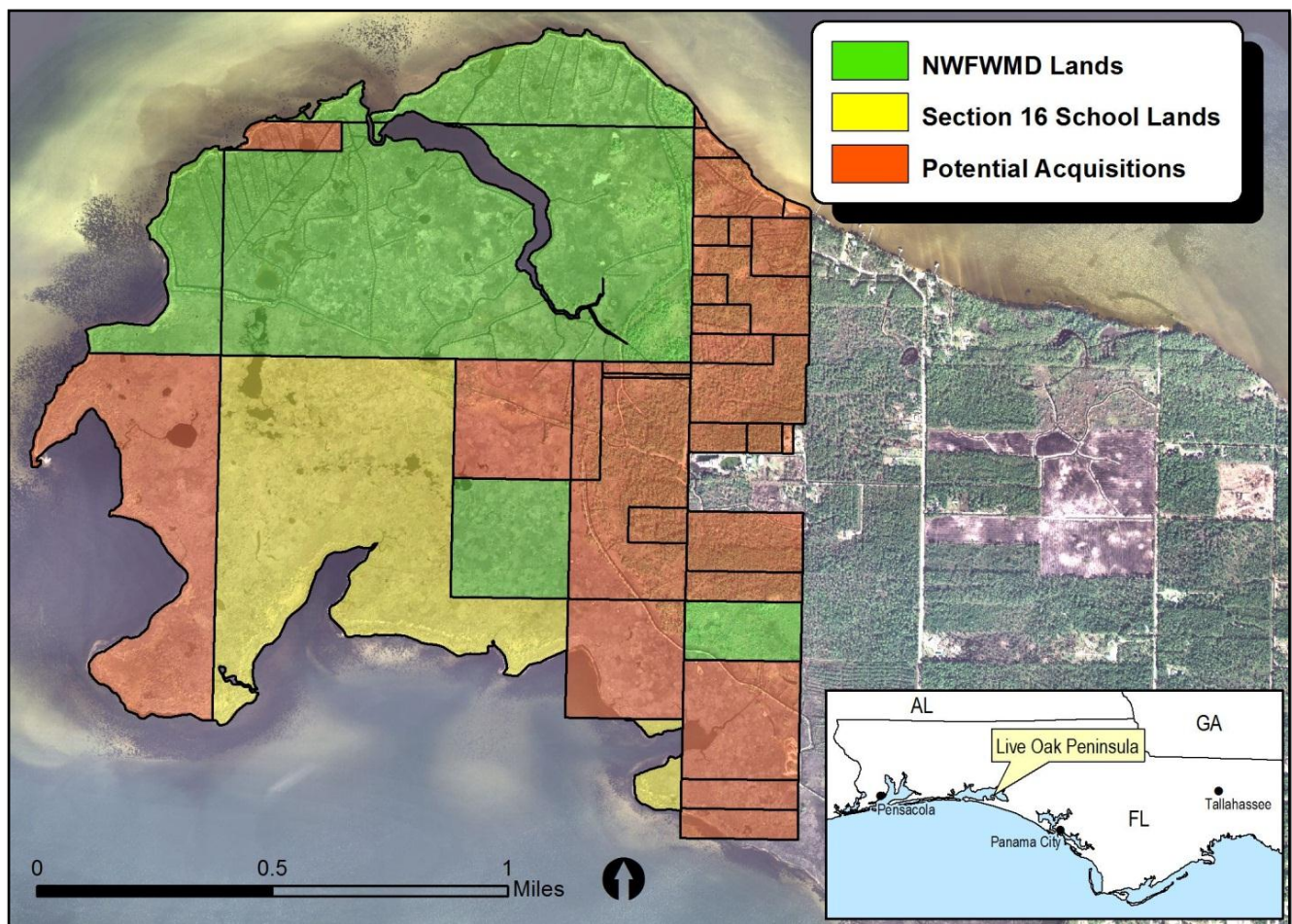


Figure 3. Live Oak Point Peninsula, Walton County

It is estimated that acquisition of the targeted potential acquisitions and Section 16 school lands (Figure 3) could be completed for approximately \$1,380,000. Initial costs for public access improvements and restoration are estimated at \$250,000. Ongoing land management costs are estimated at \$120,000.

Brunson Landing Acquisition (Washington County)

Brunson Landing consists of approximately 360 acres along Holmes Creek, four miles west of Vernon in Washington County. This parcel is adjacent to and would adjoin two existing NFWMD properties. If purchased, Brunson Landing would connect 3,510 acres of contiguous conservation land. The project area is undeveloped and potentially harbors a number of rare and endangered species, including variable-leaved Indian-plantain (*Arnoglossum diversifolium*), ciliate-leaf tickseed (*Coreopsis integrifolia*), and the endangered reticulated flatwoods salamander (*Ambystoma bishopi*). The U.S. Fish & Wildlife Service has designated 113 acres of the property as Critical Habitat for reticulated flatwoods salamander.

The natural hydrologic conditions of the tract are at risk from residential or commercial development, and they have already been negatively affected by timber operations and lack of management. However, the site has several ephemeral ponds with intact vegetative components that are in excellent condition, making it an excellent candidate for preservation and enhancement of the primary habitat for the flatwoods salamander. This would include restoration of the pine plantation to native wet flatwoods or wet prairie.

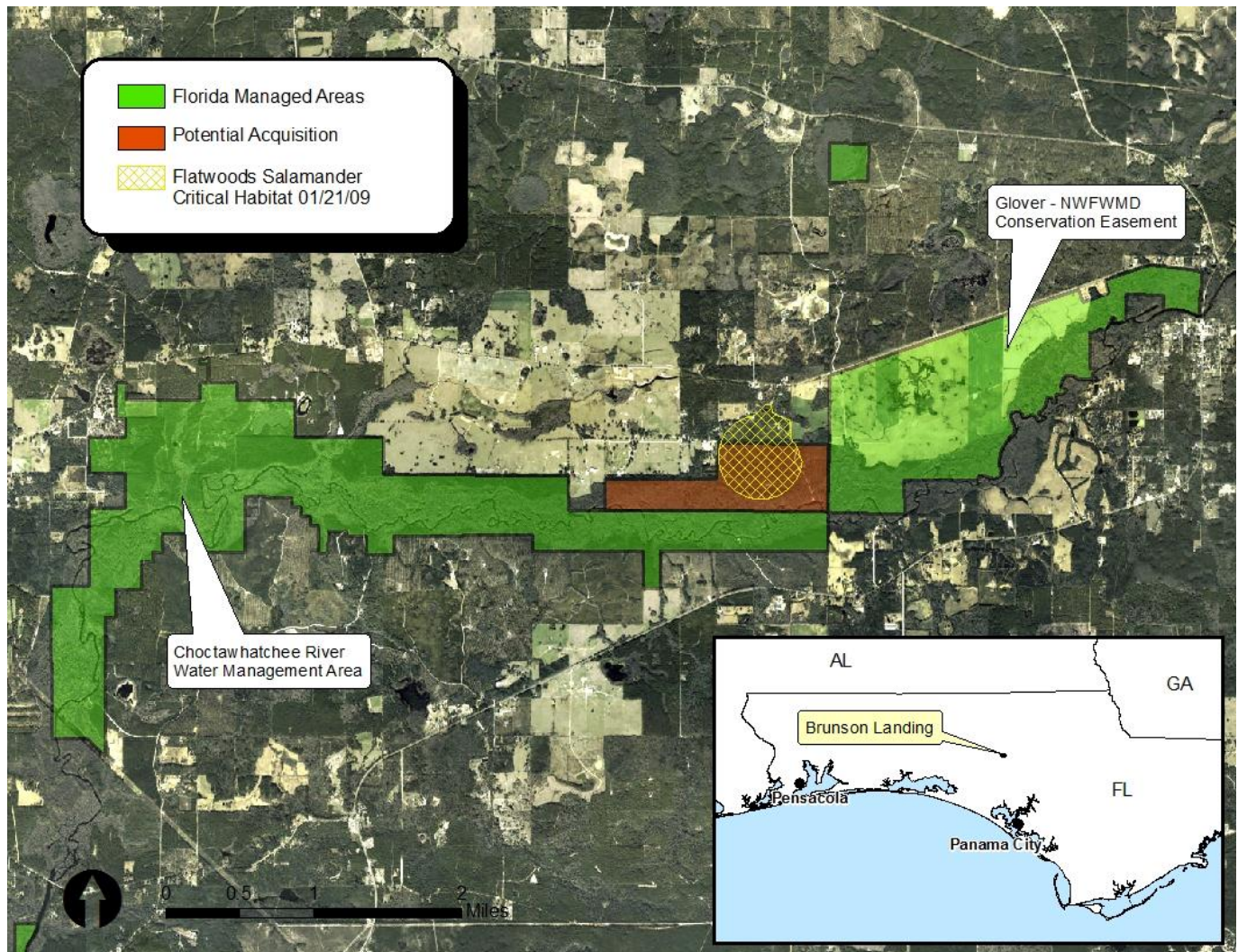


Figure 4. Brunson Landing Parcel, Washington County

The acquisition would directly protect Holmes Creek, which is noteworthy due to its importance for fish and mollusk diversity and public use and recreation. The creek's discharge to the Choctawhatchee River also provides important habitat for the threatened Gulf sturgeon (*Acipenser oxyrinchus desotoi*). Land acquisition, enhancement, restoration and ongoing management are estimated to cost \$1,470,000.

Econfina Recharge Area Inholdings Acquisitions (Washington, Bay, and Jackson Counties)

To date, the District has purchased more than 41,000 acres in the Econfina Recharge Area of Washington and Bay counties. This region provides ground water recharge for most of the baseflow of Econfina Creek and Deer Point Lake Reservoir. This reservoir is the primary water supply source for the over 168,000 residents of Bay County. Econfina Creek and Deer Point Lake Reservoir are also the primary sources of fresh water to the St. Andrew Bay estuary. Thus, protecting the functional sustainability the Econfina Recharge Area is critical to both the sustainability of a major coastal water supply source and for protecting the quality and productivity of St. Andrew Bay and adjoining coastal waters. The St. Andrew Bay estuary encompasses West Bay, North Bay, St. Andrew Bay, and East Bay. It includes expansive seagrass beds and recreationally and commercially important fish and shellfish resources.

District lands in the Econfina Recharge Area provide a uniquely valuable environmental and public resource. The region is one of great ecological diversity, hosting a broad array of wetland, aquatic, and upland habitats and a number of rare and endemic species. The NFWFMD lands include most of the Sand Hill Lakes region, with numerous karst ponds and lakes supporting unique floral communities and fish and wildlife resources. These public lands also provide an exceptional public recreational resource.

The NFWFMD proposes to acquire critical in-holdings within the Econfina Creek Water Management Area. In addition to further enhancing the quality of the resource, acquisition of these inholdings will reduce potential future liability and land management concerns regarding potential development threats, use of prescribed fire, access, and public recreation. Specific parcels proposed for acquisition are:

- Gully Pond. This 122 acre parcel consists primarily of lake bottom with approximately 2.5 acres of uplands. Water levels fluctuate widely, as most of the parcel has been dry over the past ten years due to drought. The parcel is surrounded by District land and does not have legal access. The estimated cost of acquisition and associated costs is \$170,000.
- Hobb's Pasture. This parcel covers 40 acres adjacent to Deer Point Lake Reservoir. Acquisition of the parcel would protect water quality in the reservoir and enhance public access and habitat protection. The estimated cost of acquisition and associated costs is \$225,000.
- Hurst Parcel. This parcel covers 2,600 acres near the headwaters of Econfina Creek. The acquisition would protect a primary tributary (Buckhorn Creek). It is within an area of high recharge to the Floridan Aquifer and would provide high quality resource-based public recreation. The estimated cost of acquisition is \$8,000,000, with another \$3,050,000 in associated habitat restoration and management costs for a total cost of \$11,050,000.

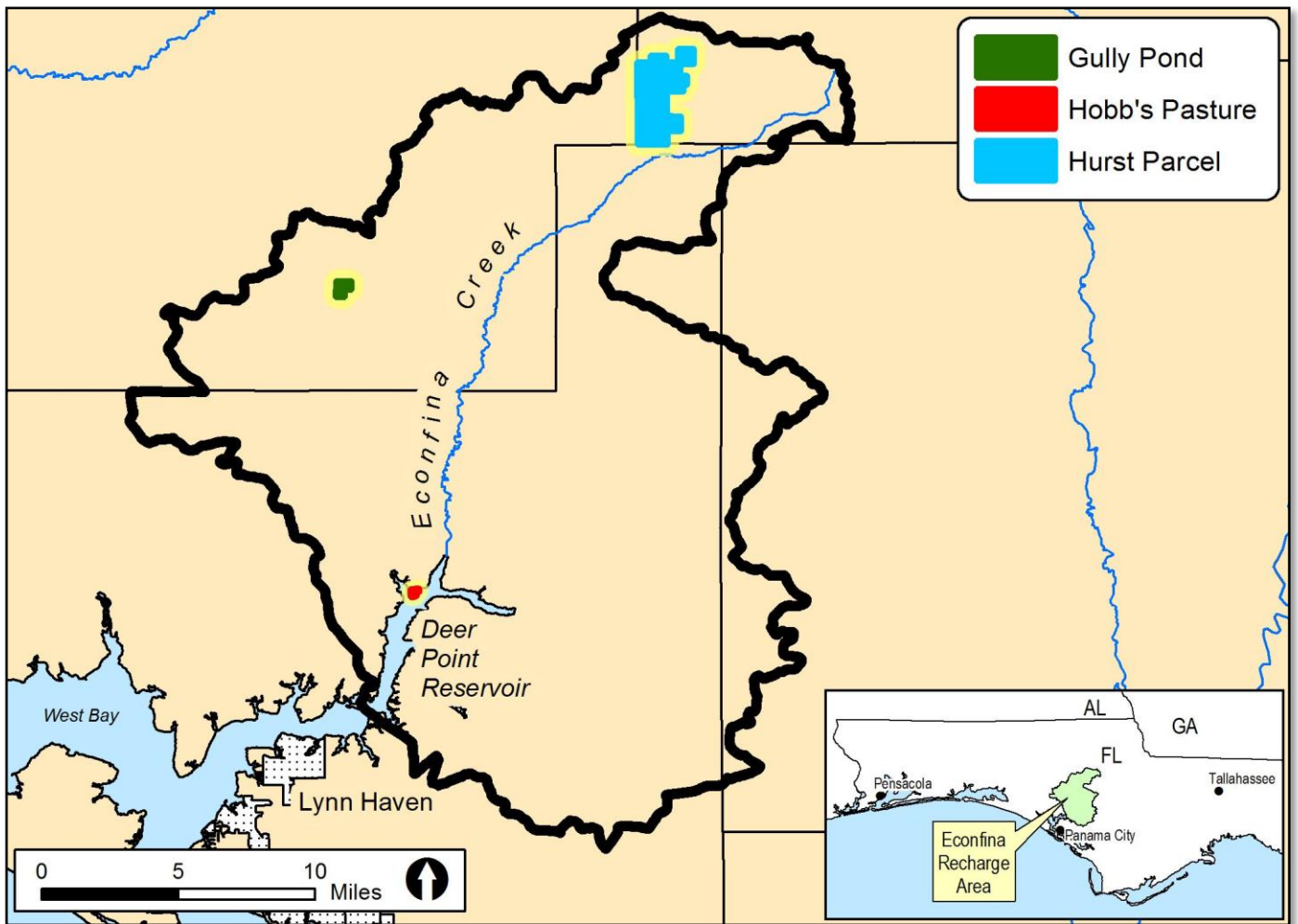


Figure 5. Econfina Recharge Area Inholdings

Wakulla Springs Basin Acquisition (Wakulla County)

The proposed Ferrell property acquisition contains a mixture of high-quality wetlands, sinkholes and forested uplands within the Wakulla Springs springshed. The property is adjacent to the Apalachicola National Forest and is near Edward Ball Wakulla Springs State Park. It is also within the Wakulla Springs Protection Zone—an area identified as needing protection for the ecological well-being of the springs.

Through this project, the NFWFMD seeks to acquire and preserve high-quality wetlands and associated upland buffers adjacent to Wakulla Springs State Park and the national forest. Completion of the project would protect 1,010 acres. Following acquisition, additional environmental enhancement could be accomplished in phases.

The property includes numerous karst features and has direct connectivity to the underlying aquifer. Some threat of conversion to more intensive land uses is evident from the development of the parcel immediately to the west. Preserving the natural forest cover and wetland habitat of this parcel would protect water quality in Wakulla Springs and the Wakulla River and water and aquatic habitat quality in receiving waters in Apalachee Bay and the Gulf of Mexico. Acquisition, enhancement and management costs are estimated at \$5,050,000.

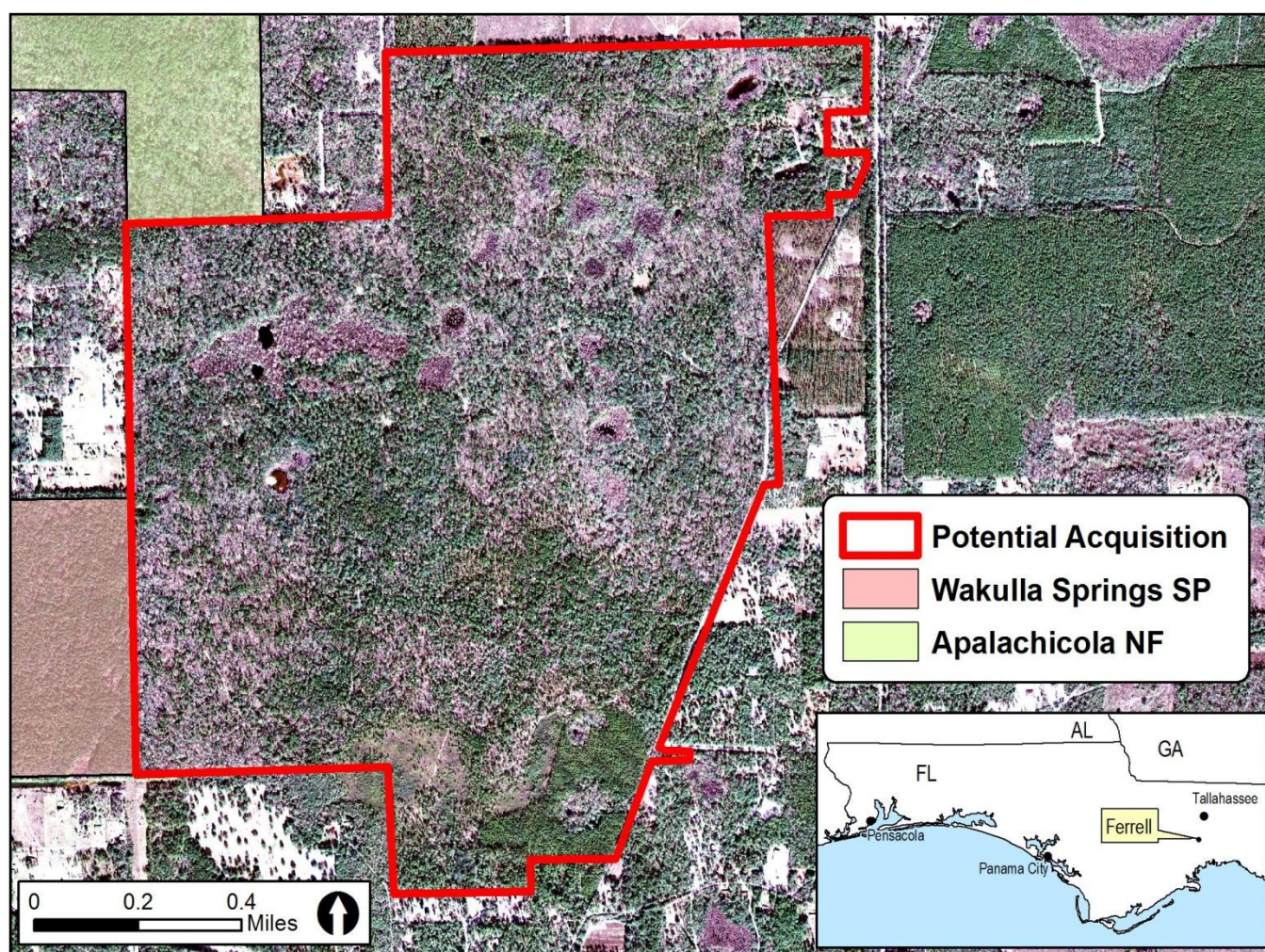


Figure 6. Proposed Ferrell Property Acquisition, Wakulla County

Urban Stormwater Retrofits – Pensacola Bay System, Choctawhatchee Bay, and St. Andrew Bay (Escambia through Bay Counties)

Urban stormwater runoff and nonpoint source pollution present the most significant continuing source of water and sediment quality degradation in most of northwest Florida's coastal waters. Retrofit of stormwater systems to protect water quality and manage flows is especially needed in the Pensacola Bay System, Choctawhatchee Bay, and St. Andrew Bay, where much of the existing development was constructed prior to the enactment of modern stormwater regulations. Effects have been especially pronounced in urban bayous, where concentrated pollutant loading has resulted in degraded sediments, poor water quality, and severely altered and diminished aquatic habitat.

Priorities in the Pensacola Bay System include the drainage basins of bayous Chico, Texar, and Grande; much of downtown Pensacola; and the city of Gulf Breeze and other communities. In Choctawhatchee Bay, the urbanized bayous in the western portion of the bay have experienced substantial ecological degradation from untreated stormwater runoff. St. Andrew Bay has experienced similar conditions, including in Watson Bayou, Grand Lagoon, Massalina Bayou, and urban drainages within the city of Panama City.

Stormwater retrofit facilities would be developed cooperatively with local governments, which would maintain long-term ownership and maintenance responsibilities. In addition to improving water and aquatic habitat quality, projects will be designed to provide flood protection, to restore littoral and intertidal habitats, and to provide aesthetic and recreational amenities for local communities.

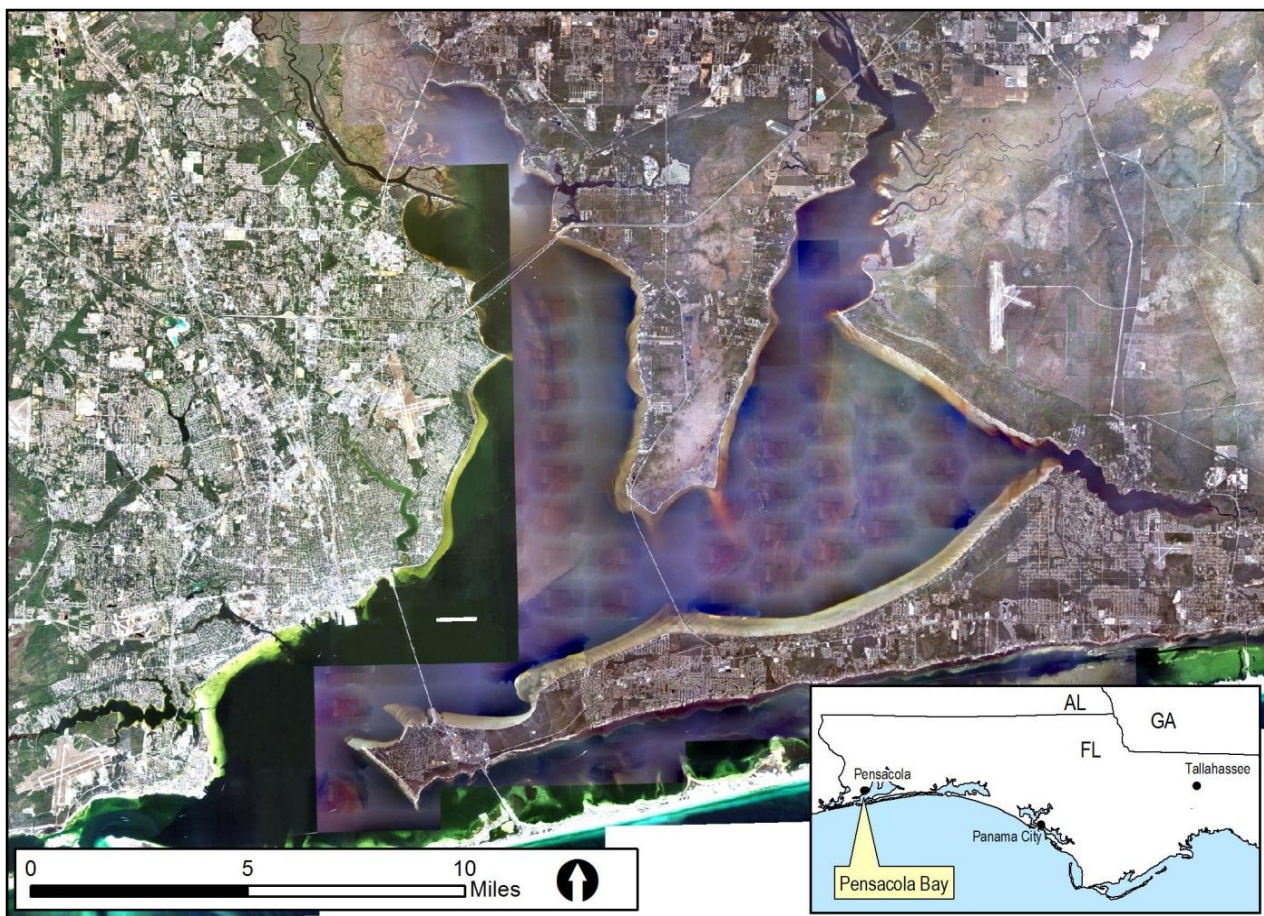


Figure 7. Pensacola Bay System Urban Retrofit Area, Escambia and Santa Rosa Counties

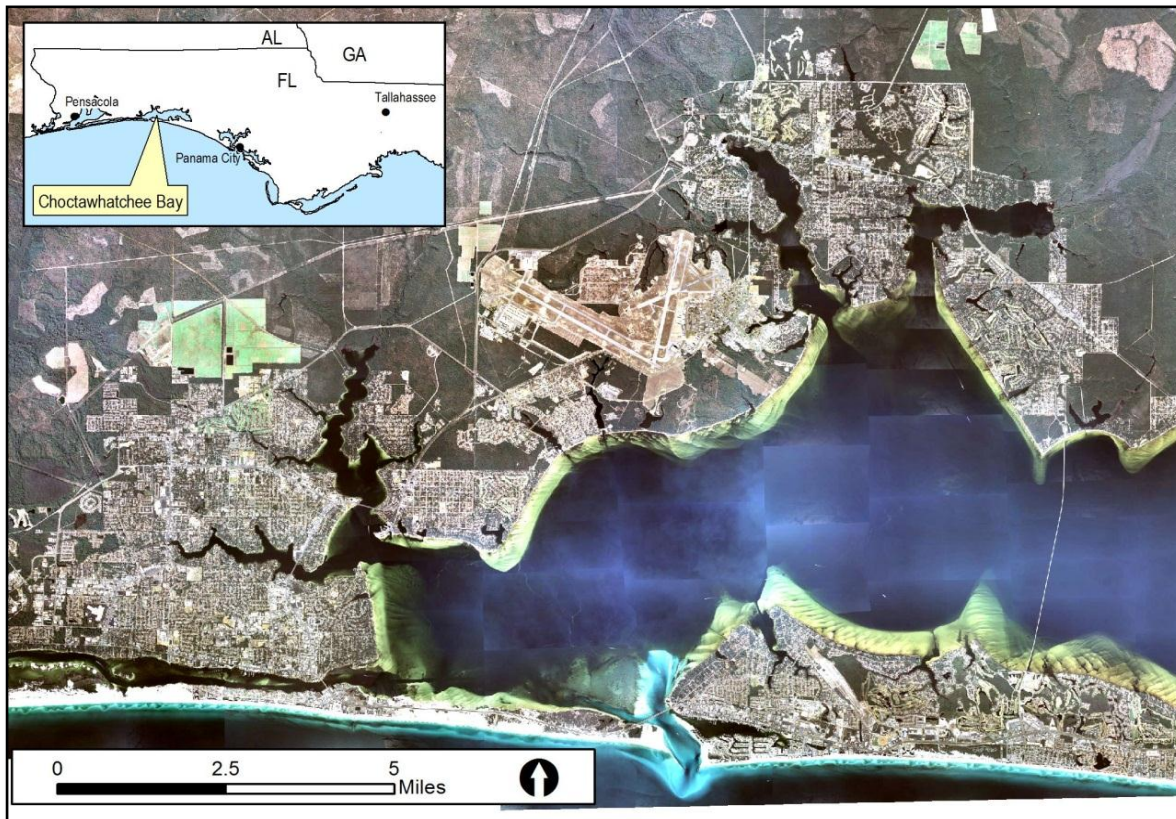


Figure 8. Choctawhatchee Bay Urban Retrofit Area, Okaloosa and Walton Counties

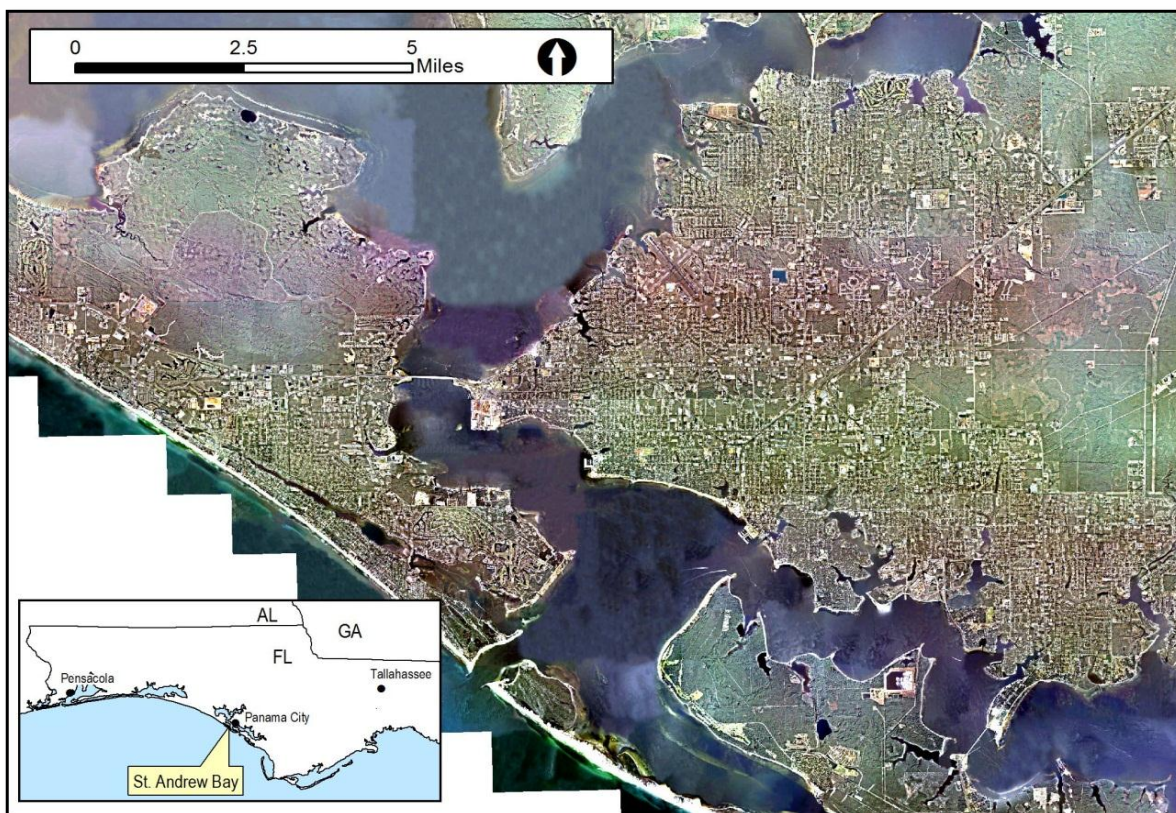


Figure 9. St. Andrew Bay Urban Retrofit Area, Bay County

Choctawhatchee River Watershed Sedimentation Abatement (Walton, Holmes, Washington, and Jackson Counties)

Unpaved road stream crossings are continuing sources of sediment loading into streams and coastal waters throughout northwest Florida. Storm events carry sediments from unpaved roads directly into streams and wetlands, smothering habitats, changing the physical structure of stream systems, and diminishing water quality. Poor quality water and fine sediments are subsequently carried into the major rivers and receiving estuarine waters. The Choctawhatchee River and Choctawhatchee Bay have been noted as being particularly affected by sedimentation and resulting habitat and water quality impacts. This reflects a process that has gone on for many decades, causing pronounced impacts to watershed resources and functions. Due to the widespread nature of this problem and the expense of improving and maintaining roads, it presents a significant long-term challenge.

The Choctawhatchee River and Choctawhatchee Bay, as well as adjacent coastal waters, have been designated as critical habitat for the threatened Gulf sturgeon (*Acipenser oxyrinchus desotoi*). The river-bay system is also important for other diadromous species, such as the American eel (*Anguilla rostrata*) and commercially and recreationally important fisheries. Receiving waters in Choctawhatchee Bay support seagrass beds and other estuarine habitats that are especially sensitive to water quality.

In 2006, a comprehensive assessment was conducted of 1,205 unpaved road stream crossings in the lower Choctawhatchee River watershed. Of these, numerous sites were identified where sedimentation has smothered benthic habitats and degraded water quality. Thirty-six sites were identified as being high priorities. This project proposes to treat the highest priority sites. The work may include hilltop-to-hilltop paving, use of pervious pavement for the lower trafficked areas, installation of catch basins and other best management practices, and removal of sediments from severely impacted sites. The overall construction cost to treat the highest priority sites is projected at \$9,000,000. Due to the importance of long-term maintenance, additional funding may be required for long-term maintenance by financially disadvantaged rural local governments.

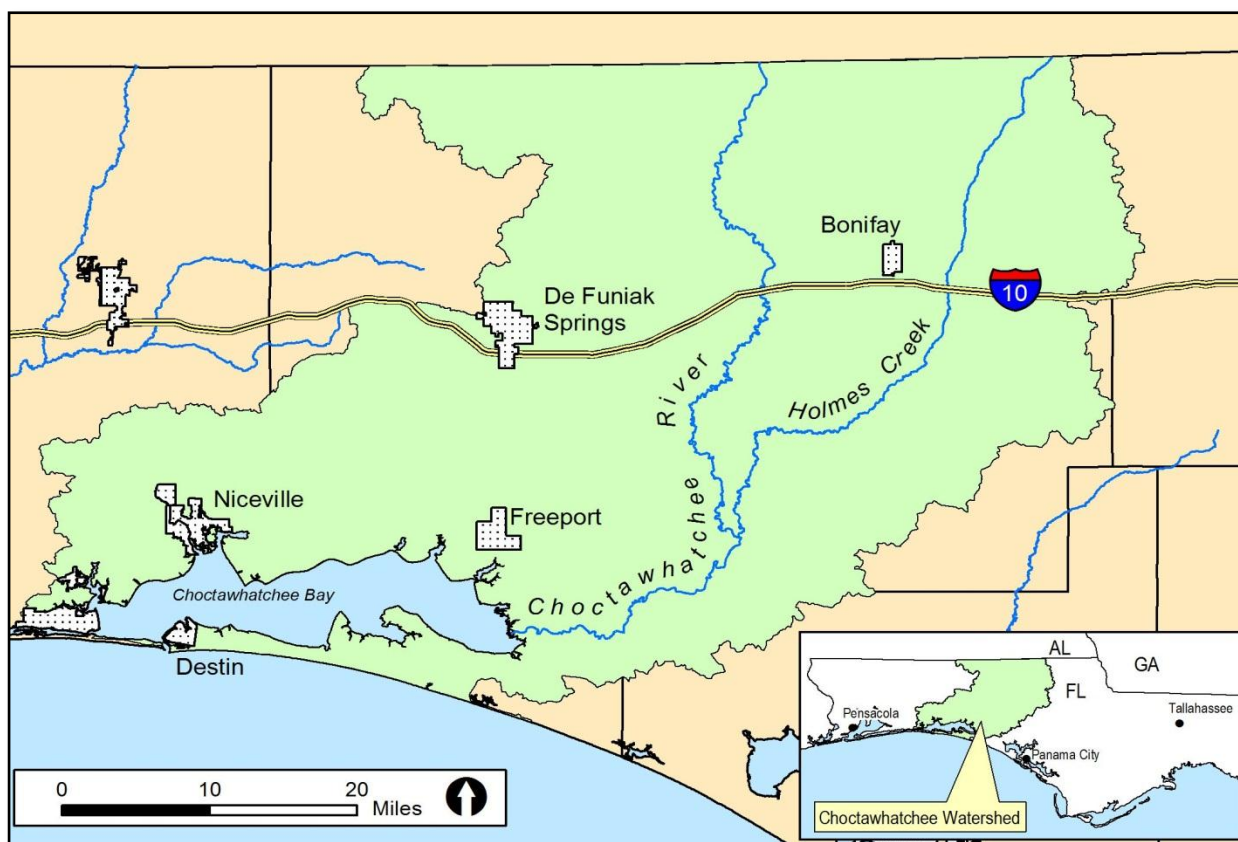


Figure 10. Lower Choctawhatchee River Watershed