Surface Water Improvement and Management (SWIM) Plan Update

Ochlockonee River and Bay Watershed

February 15, 2017

Surface Water Improvement and Management (SWIM) Program

Created through passage of the Surface Water Improvement and Management Act in 1987; Sections 451-459, Florida Statutes.

Purpose: Developed to address major watershed (coastal/ surface water) issues throughout the State.

Plans will provide:

- Watershed description;
- Assessment of watershed and water resource conditions;
- Evaluation of accomplishments and improvements since previous SWIM Plan;
- Project plan to address identified watershed needs and challenges; and
- Estimate funding needs and funding alternatives.

SWIM in Northwest Florida

The District developed SWIM plans for all major watersheds/ waterbodies; two (Perdido and Ochlockonee) remain in a draft status.

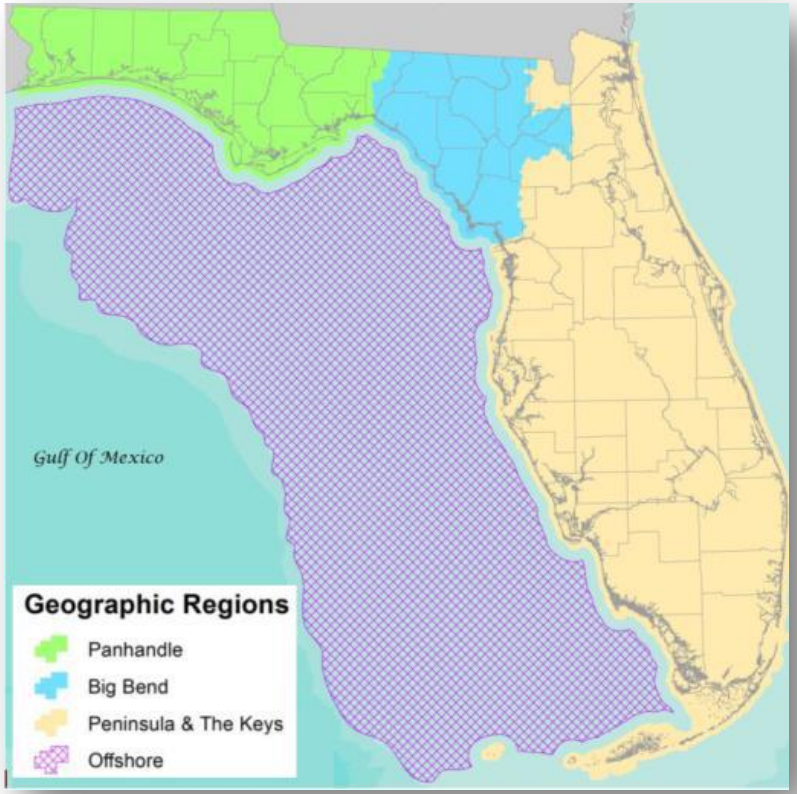
Waterbody	Most Recent Plan/ Update Date
Apalachicola	1996
Pensacola	1997
Choctawhatchee	2002
St. Marks	2009
St. Andrew Bay	2000
Lake Jackson	1997
Perdido	Draft 2011
Ochlockonee	Draft 2012

Gulf Environmental Benefit Fund (GEBF)

GEBF Restoration Strategy:

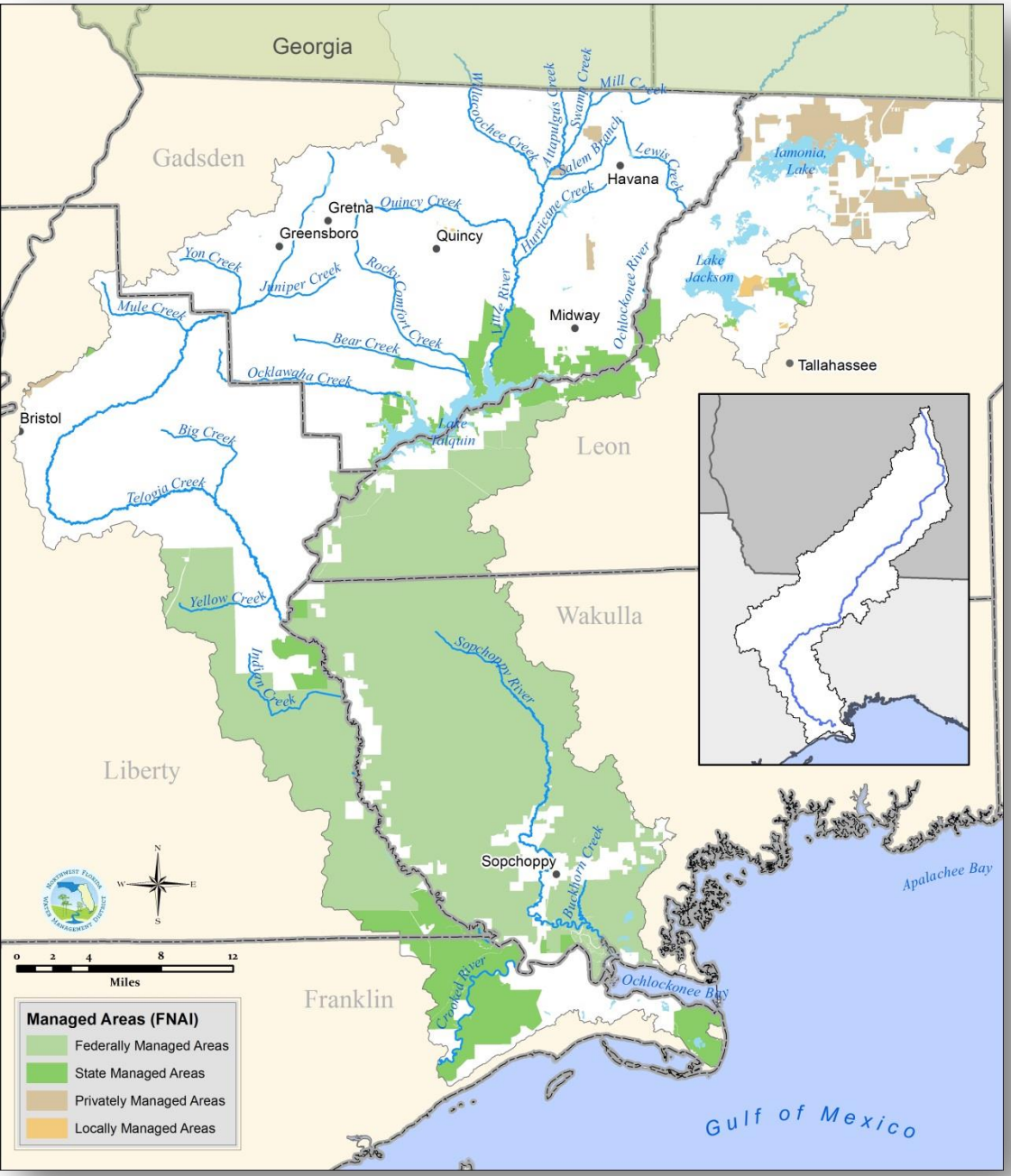
- SWIM Plan Updates (NWF & Suwannee WMDs).
- Seagrass Assessment (Fish and Wildlife Research Institute).

Goal: Prioritized Project List



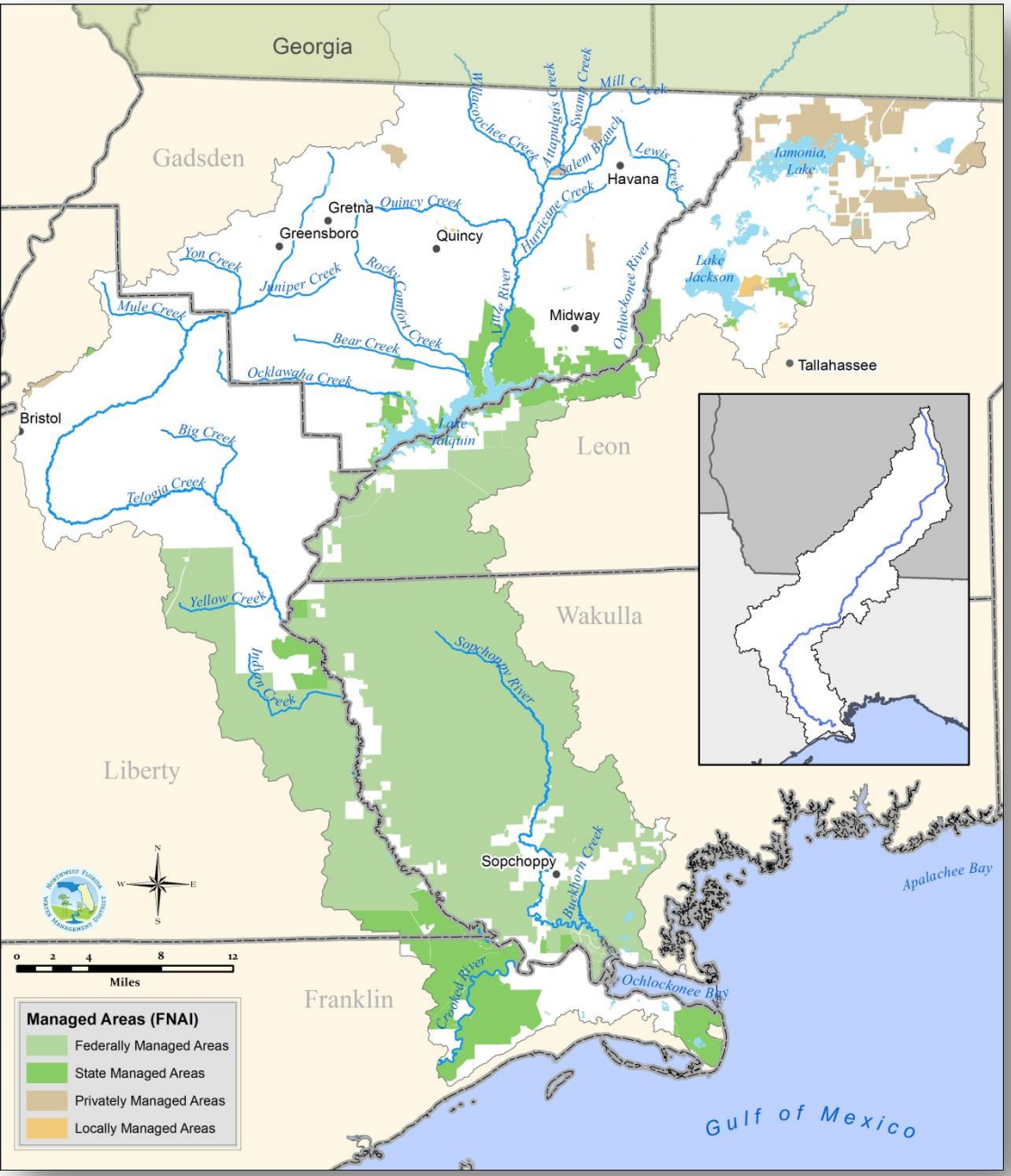
ecology and environment, inc.
Global Environmental Specialists

Ochlockonee River And Bay Watershed



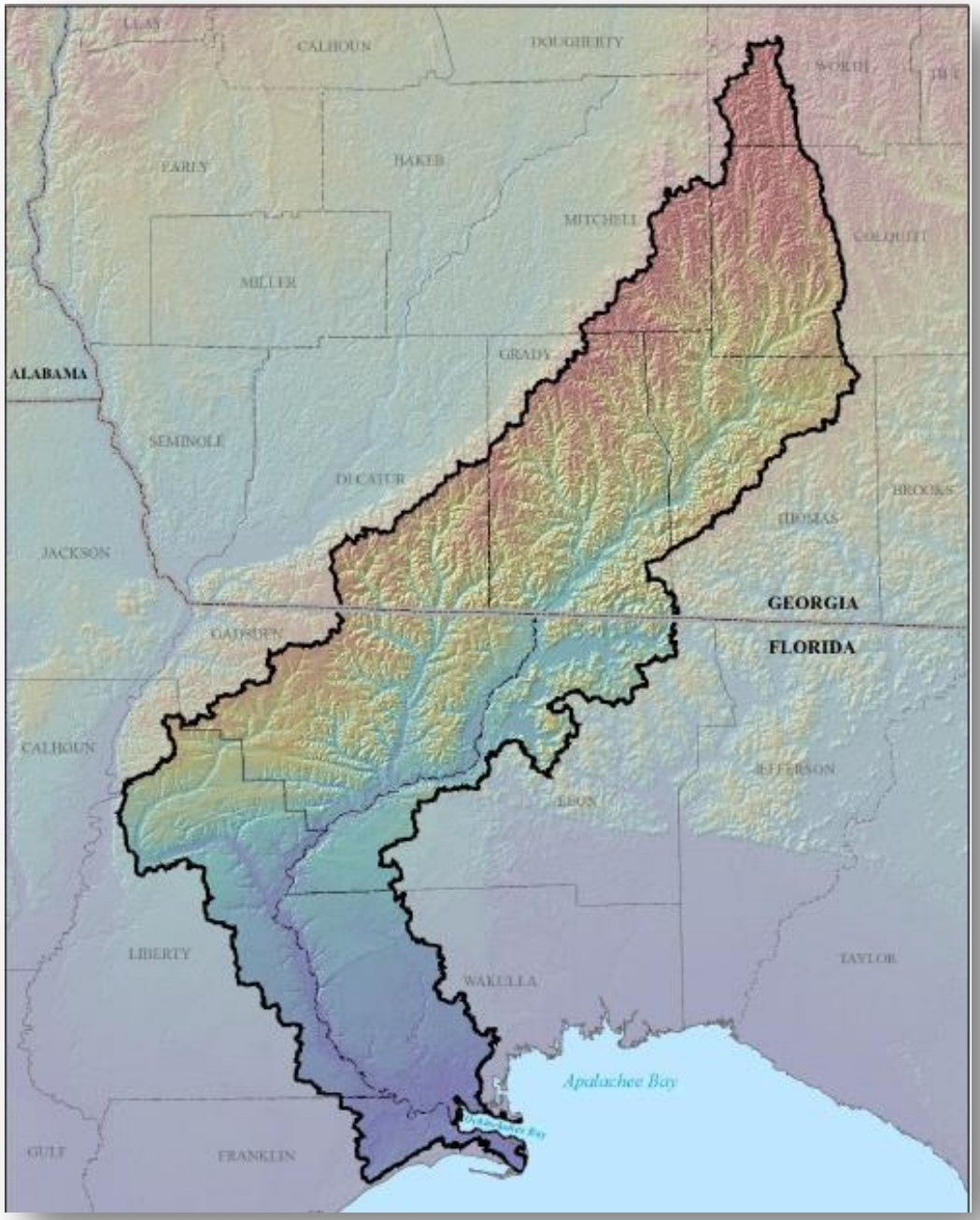
Ochlockonee River and Bay Watershed

- Approximately 1.6 million acres
- 53% in Florida
- Conservation lands encompass about 44% of the watershed in Florida, and include the Federally designated Bradwell Bay Wilderness Area
- Diverse water resources: sinkhole influenced lakes, major alluvial river, blackwater streams, tidal creeks, and coastal estuary
- 2010 watershed population estimated at over 94,500 in Florida alone



Ochlockonee River and Bay Watershed

- River flows 216 miles through Georgia and Florida
- About 116 miles of the river (including Lake Talquin) flows through Florida
- Lake Talquin is an impoundment of the Ochlockonee; covering 8,800 acres; 15 miles long and up to 1 mile wide
- Sopchoppy River headwaters are largely within the Apalachicola National Forest/Bradwell Bay Wilderness Area
- Crooked River spans the Ochlockonee and Apalachicola River Watersheds



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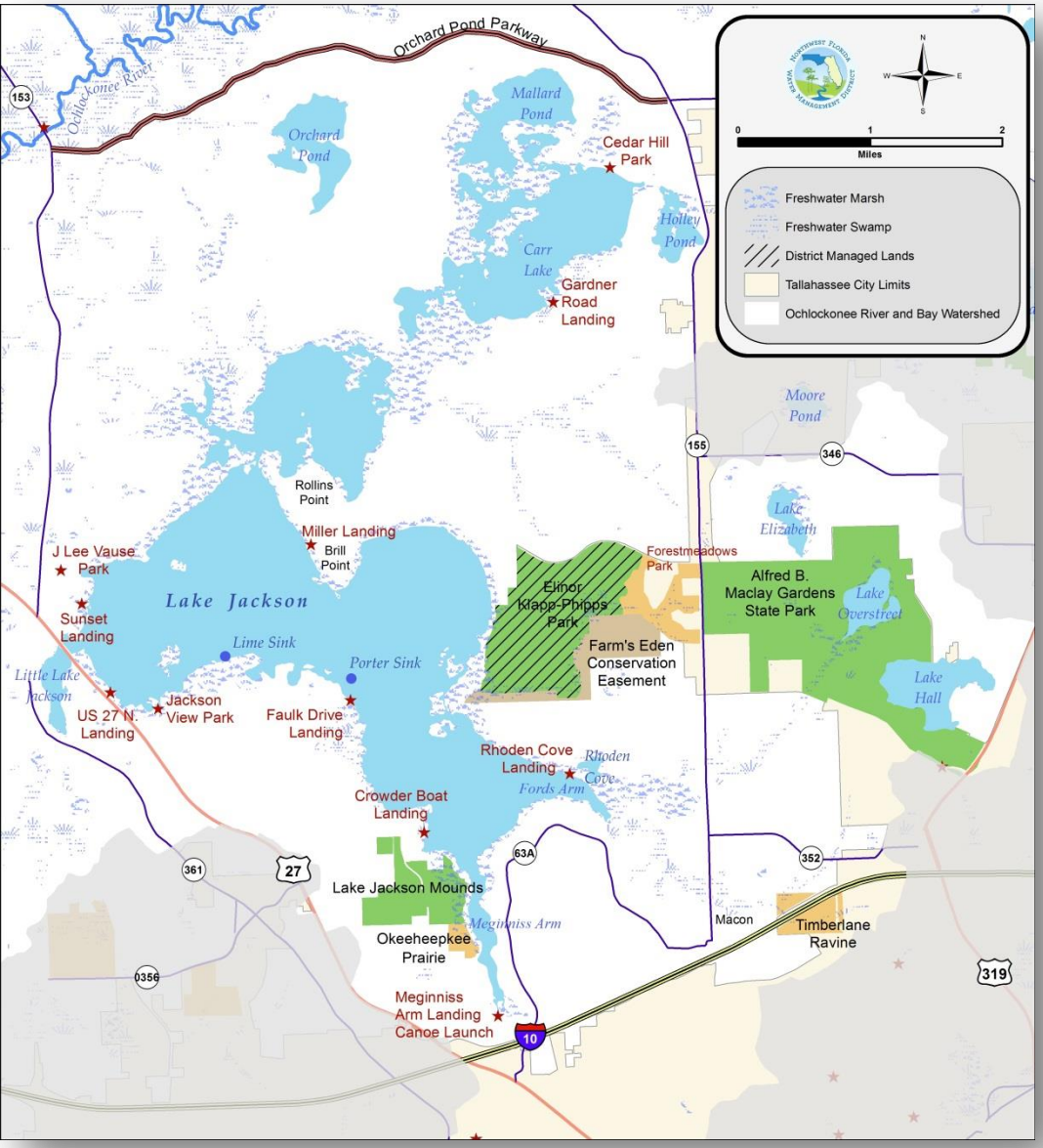
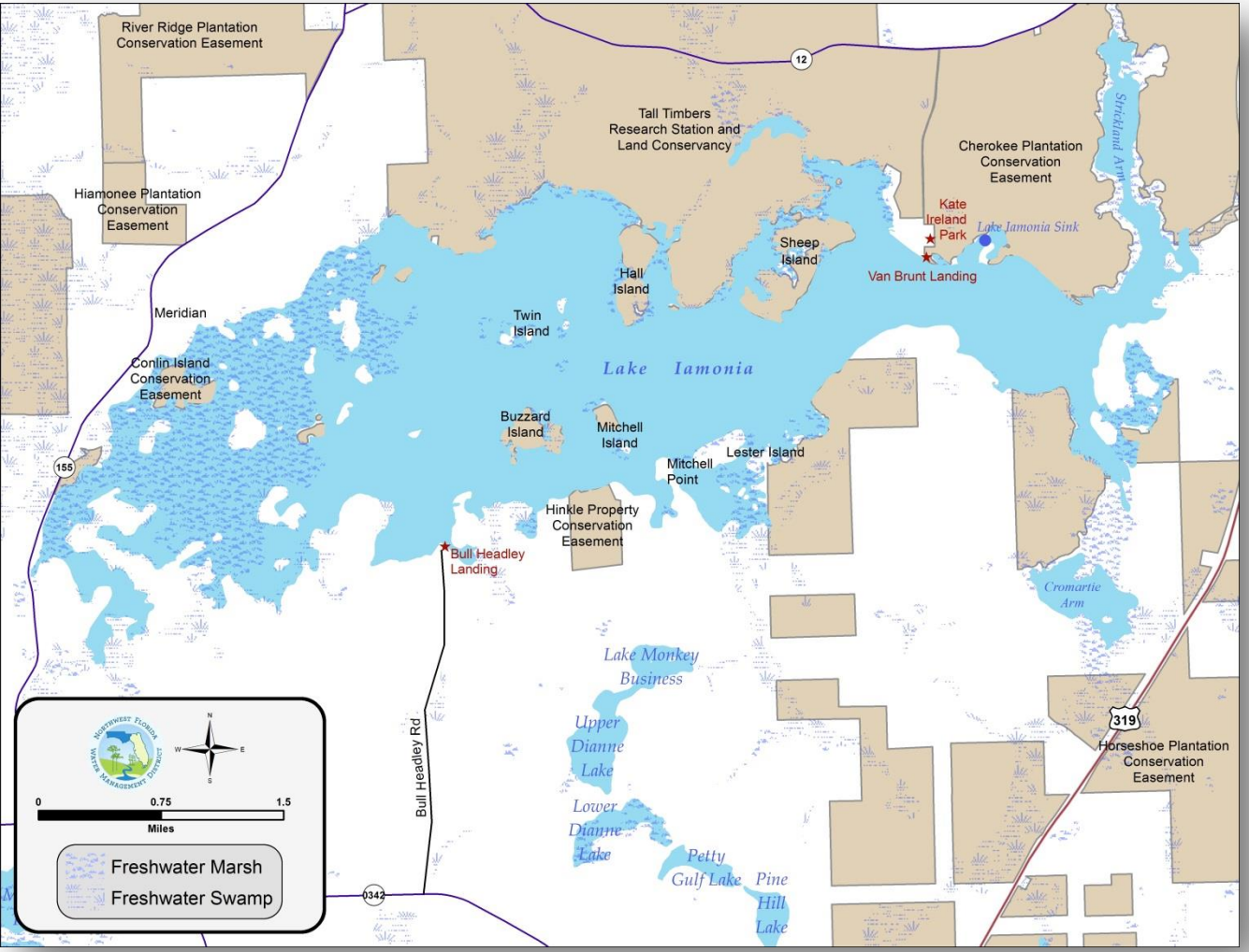


Major Lakes with Sinkhole Influence

Lake Jackson

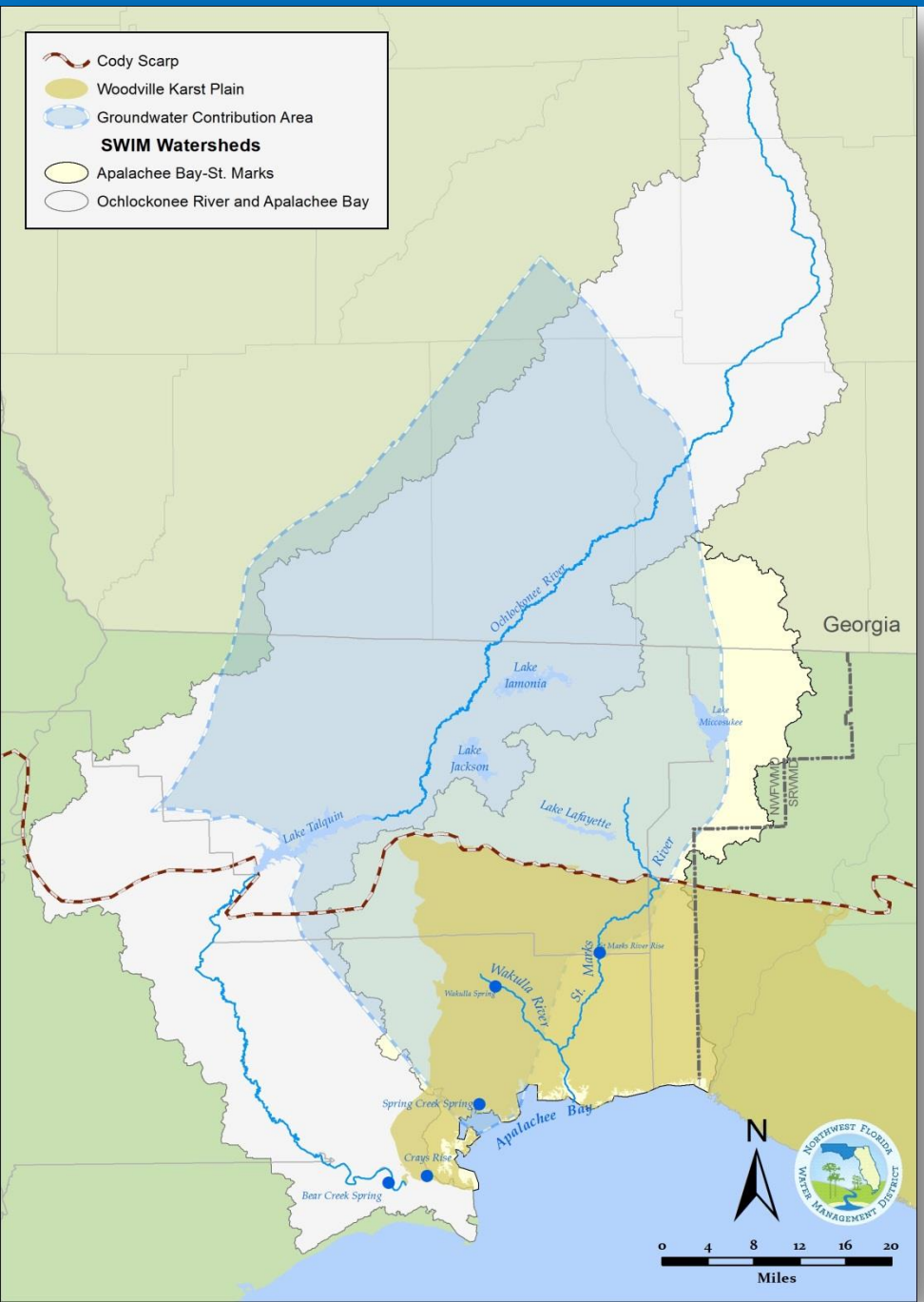
- 4,000 acres
- Designated as an Aquatic Preserve in 1974 to protect recreational, biological, and aesthetic values
- Outstanding Florida Water
- One of the few large sinkhole lakes in Florida that has not been hydrologically altered
- A “disappearing” lake, drains through sinkholes
- 43 square mile watershed

Major Lakes with Sinkhole Influence



Lake Iamonia

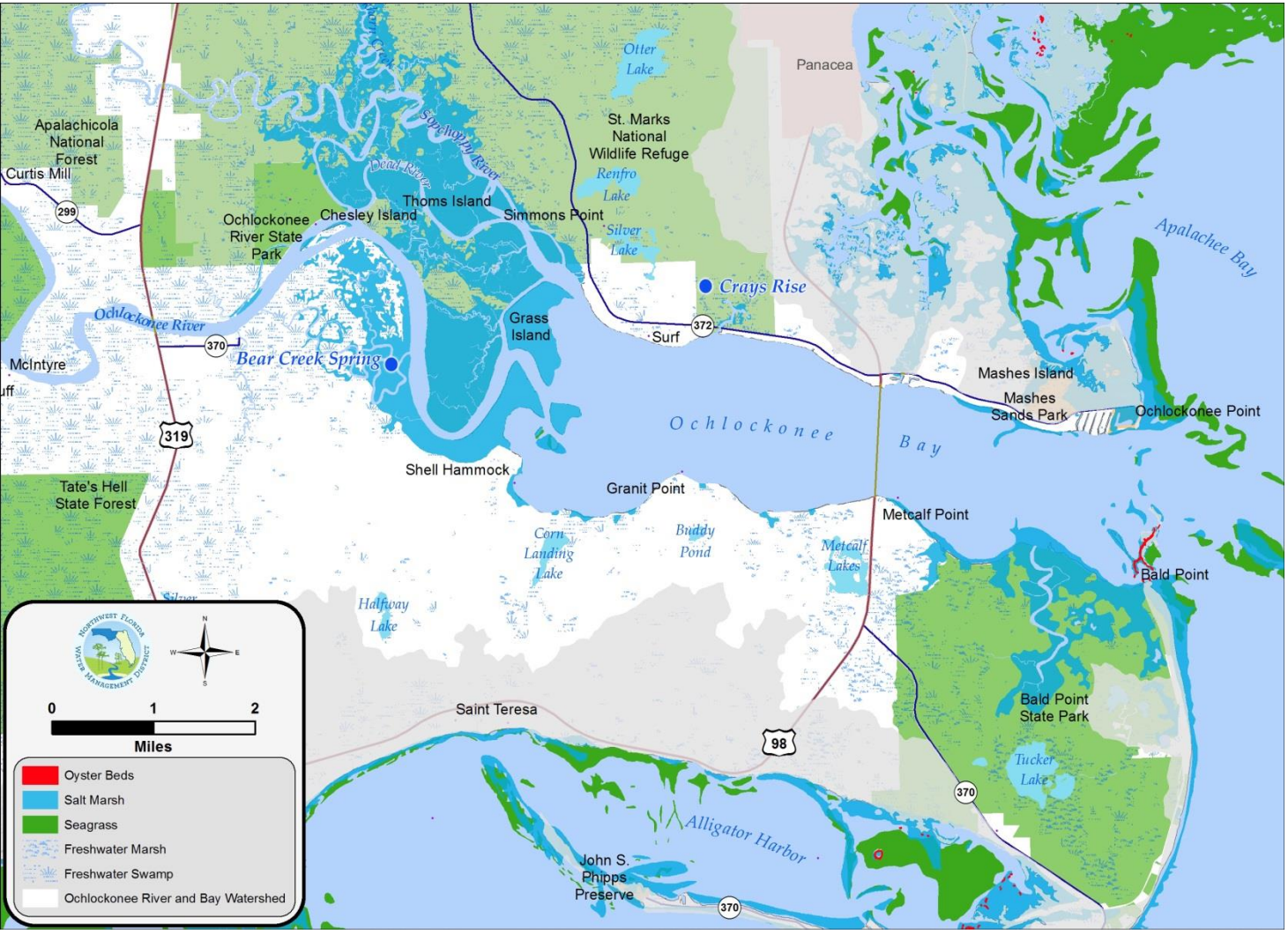
- 5,554 acres
- Lake Iamonia Sink was hydrologically isolated in 1939, but has been allowed to fluctuate naturally since 1980
- Hydrologically connected to the Ochlockonee River and Foshalee Slough



Groundwater Contribution Area

Combined groundwater contribution area for Wakulla Springs and Spring Creek Springs Group spans portions of both the Ochlockonee River and Bay and St. Marks River watersheds.

Ochlockonee River and Bay Watershed: Coastal Features



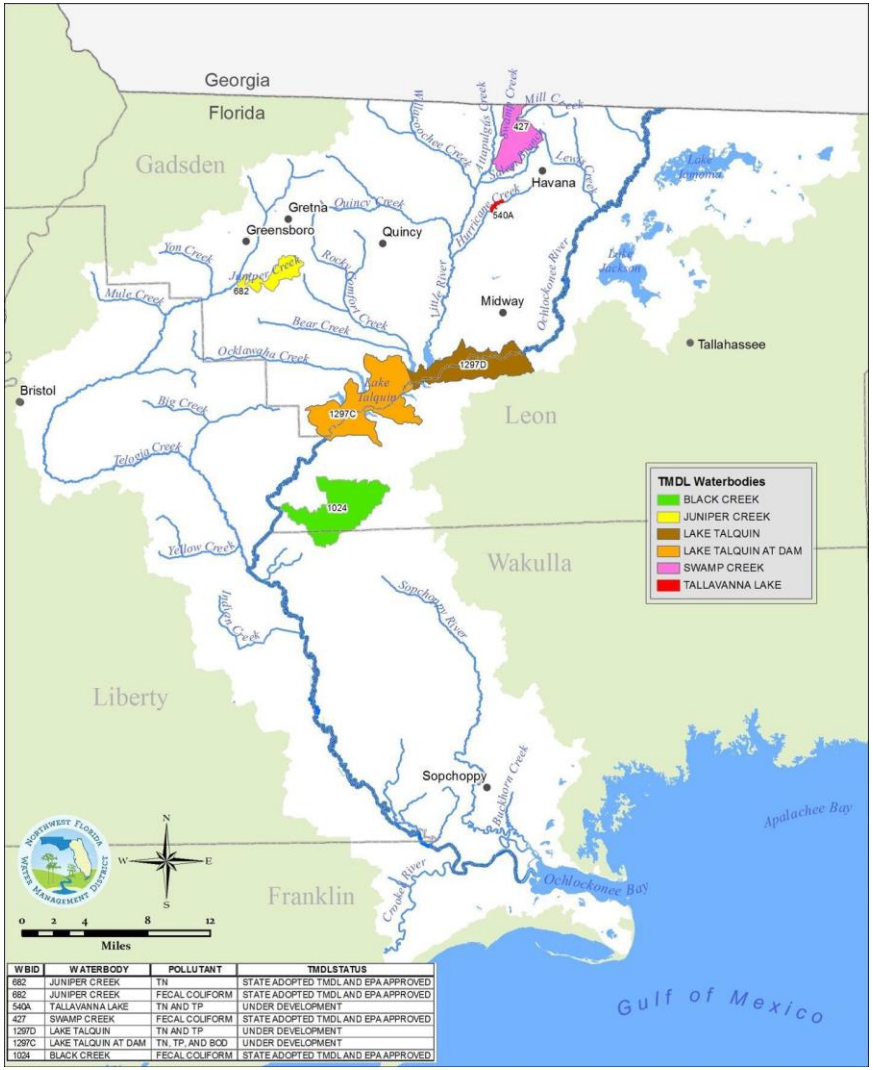
- Extensive salt marsh ecosystem protected at St. Marks NWR, Bald Point SP, and Ochlockonee River SP
- Tidal creeks, flats, seagrasses, and oyster beds
- Freshwater lakes proximate to the coast

Watershed Challenges

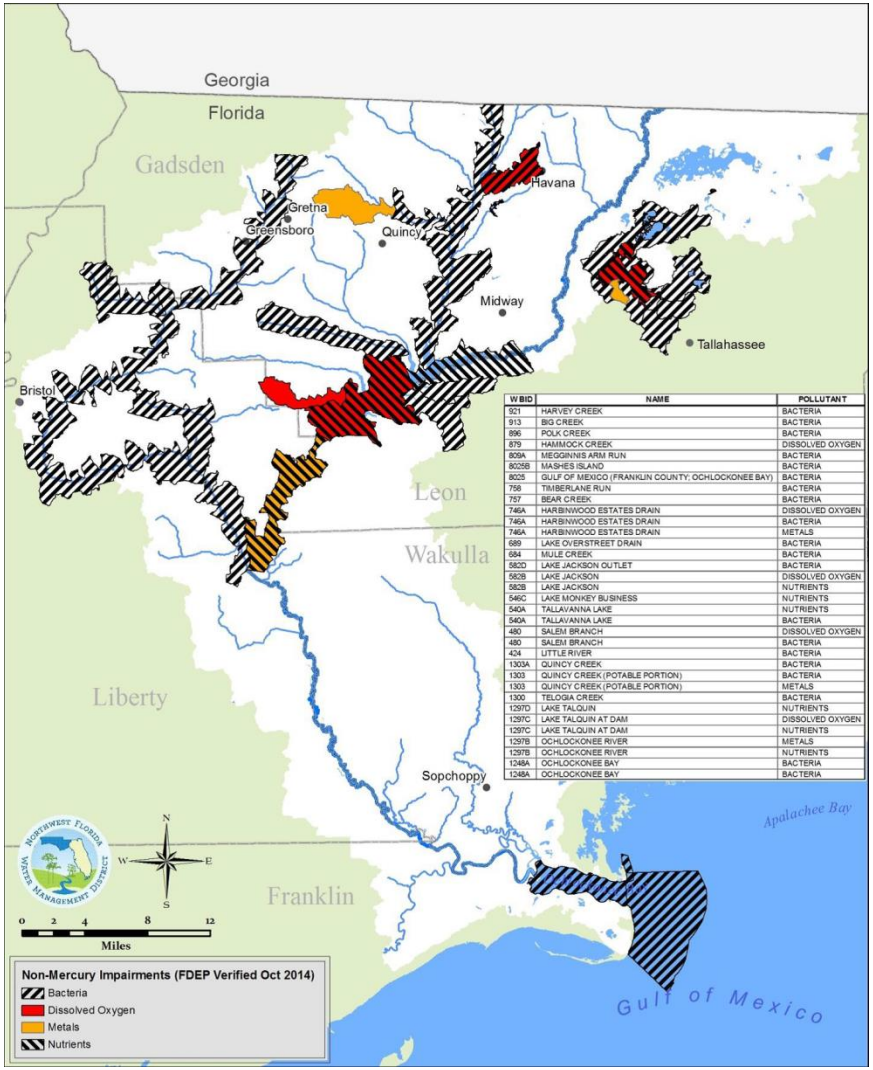
Watershed Challenges

- Water quality
  - Agricultural activities, mining, and urban land uses that generate point and NPS pollution are concentrated in the upper watershed
  - Agricultural runoff and surface mining are particularly concentrated in Gadsden County
  - Urban runoff and associated NPS pollution are long-term challenges in the Tallahassee area
  - Shoreline erosion
  - Sedimentation from construction sites and dirt roads
  - Septic systems adjacent to area lakes, streams, the river and bay

Watershed Challenges



WBID	WATERBODY	POLLUTANT	TMDLSTATUS
682	JUNIPER CREEK	TN	STATE ADOPTED TMDL AND EPA APPROVED
682	JUNIPER CREEK	FECAL COLIFORM	STATE ADOPTED TMDL AND EPA APPROVED
540A	TALLAVANNA LAKE	TN AND TP	UNDER DEVELOPMENT
427	SWAMP CREEK	FECAL COLIFORM	STATE ADOPTED TMDL AND EPA APPROVED
1297D	LAKE TALQUIN	TN AND TP	UNDER DEVELOPMENT
1297C	LAKE TALQUIN AT DAM	TN, TP, AND BOD	UNDER DEVELOPMENT
1024	BLACK CREEK	FECAL COLIFORM	STATE ADOPTED TMDL AND EPA APPROVED



WBID	NAME	POLLUTANT
921	HARVEY CREEK	BACTERIA
913	BIG CREEK	BACTERIA
896	POLK CREEK	BACTERIA
879	HAMMOCK CREEK	DISSOLVED OXYGEN
809A	MEGGINNIS ARM RUN	BACTERIA
802SB	MASHES ISLAND	BACTERIA
802S	GULF OF MEXICO (FRANKLIN COUNTY; OCHLOCKONEE BAY)	BACTERIA
758	TIMBERLANE RUN	BACTERIA
757	BEAR CREEK	BACTERIA
746A	HARBINWOOD ESTATES DRAIN	DISSOLVED OXYGEN
746A	HARBINWOOD ESTATES DRAIN	BACTERIA
746A	HARBINWOOD ESTATES DRAIN	METALS
689	LAKE OVERSTREET DRAIN	BACTERIA
684	MULE CREEK	BACTERIA
582D	LAKE JACKSON OUTLET	BACTERIA
582B	LAKE JACKSON	DISSOLVED OXYGEN
582B	LAKE JACKSON	NUTRIENTS
546C	LAKE MONKEY BUSINESS	NUTRIENTS
540A	TALLAVANNA LAKE	NUTRIENTS
540A	TALLAVANNA LAKE	BACTERIA
480	SALEM BRANCH	DISSOLVED OXYGEN
480	SALEM BRANCH	BACTERIA
424	LITTLE RIVER	BACTERIA
1303A	QUINCY CREEK	BACTERIA
1303	QUINCY CREEK (POTABLE PORTION)	BACTERIA
1303	QUINCY CREEK (POTABLE PORTION)	METALS
1300	TELOGIA CREEK	BACTERIA
1297D	LAKE TALQUIN	NUTRIENTS
1297C	LAKE TALQUIN AT DAM	DISSOLVED OXYGEN
1297C	LAKE TALQUIN AT DAM	NUTRIENTS
1297B	OCHLOCKONEE RIVER	METALS
1297B	OCHLOCKONEE RIVER	NUTRIENTS
1248A	OCHLOCKONEE BAY	BACTERIA
1248A	OCHLOCKONEE BAY	BACTERIA

Watershed Challenges

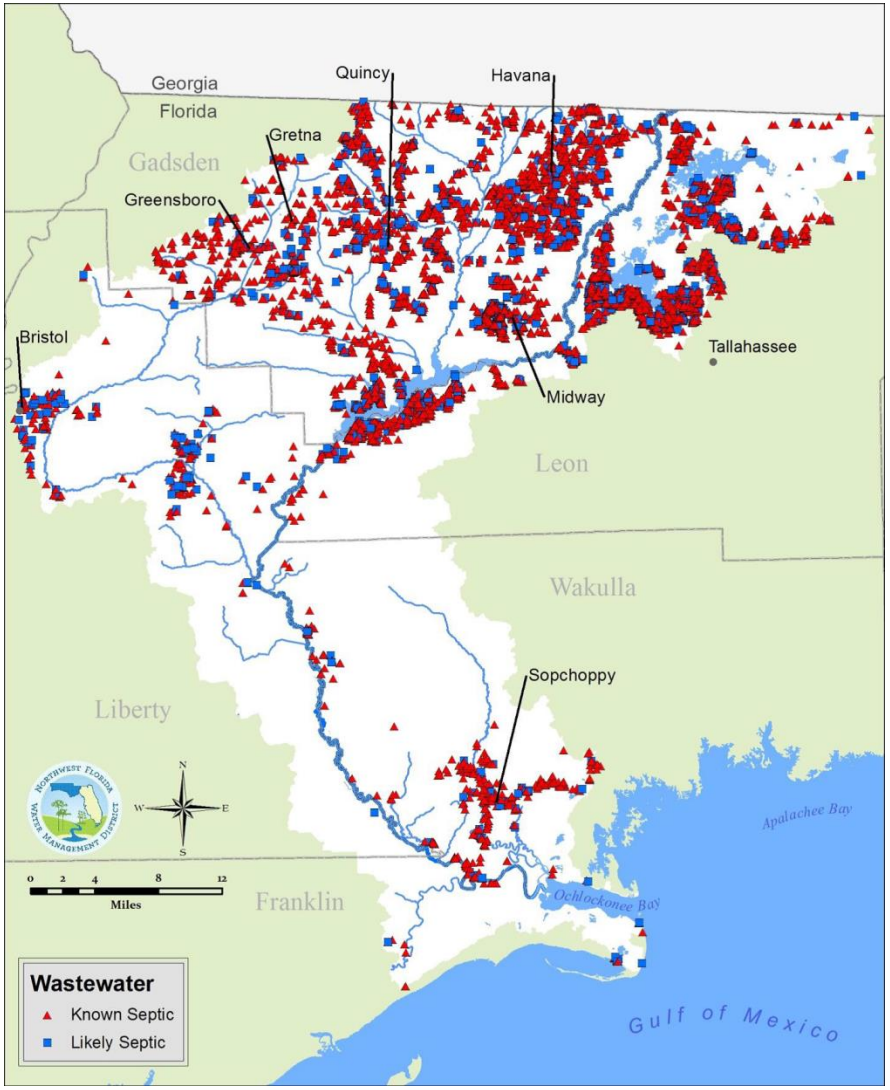
Established Total Maximum Daily Loads

Dissolved Oxygen	Nutrients	Bacteria
Juniper Creek	Lake Tallavanna	Black Creek
Lake Talquin at Dam	Lake Talquin at Dam	Juniper Creek
	Lake Talquin	Swamp Creek

Plus an additional 17 watershed segments with TMDLs established for Mercury

Watershed Challenges

Over 22,000 septic systems identified throughout the Florida portion of the watershed in 2016 (FDOH Inventory)



Watershed Challenges

- Habitat quality
  - Biological impacts of water quality impairment, including within Lake Jackson, the Ochlockonee River, and tributaries to Lake Talquin, Lake Talquin
  - Habitat impacts due to sedimentation in Lake Jackson
  - Invasive species in Lake Jackson include hydrilla, island apple snail, alligatorweed, water hyacinth, and Chinese tallow
  - Sedimentation in the Ochlockonee River may threaten the Ochlockonee moccasinshell

Roadblocks to Seagrass Recovery

Project Update – Florida Fish and Wildlife Research Institute

Project Planning

Identify “umbrella” projects addressing priority issues and objectives and encompassing known specific project priorities.

- Priority Issues
- Proposed Objectives
- Proposed Approaches and Projects

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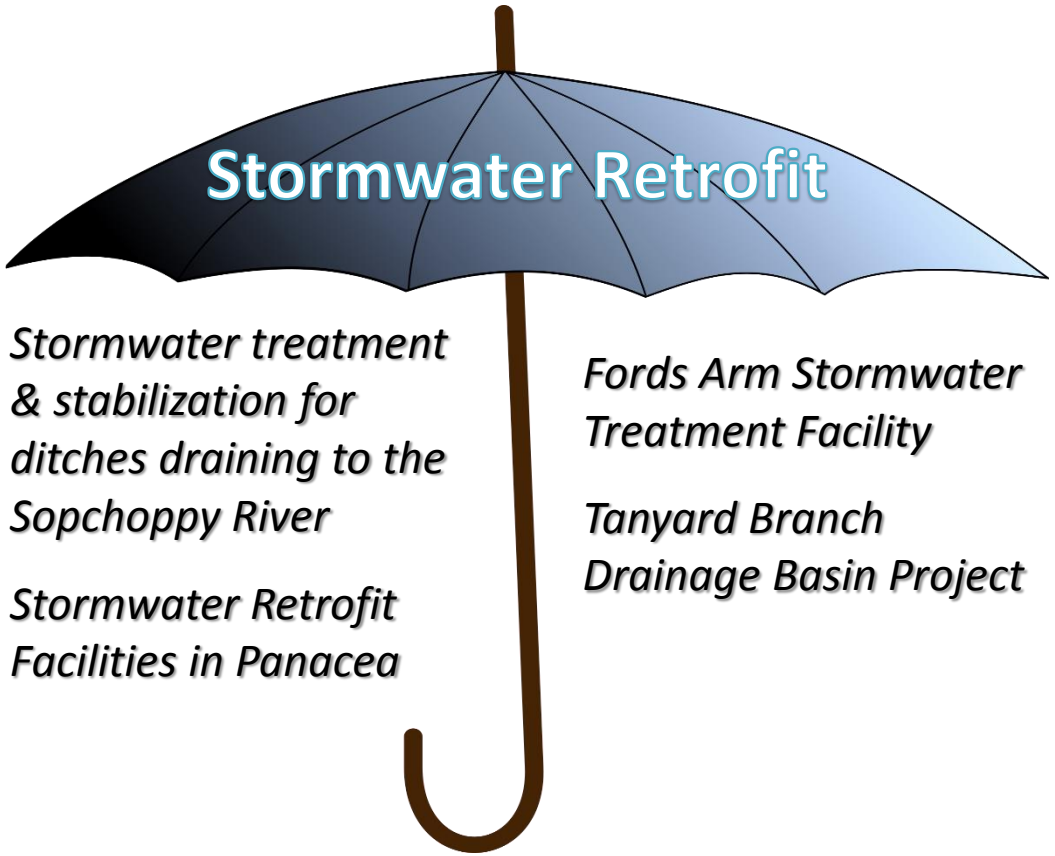


Watershed Specific Priorities and Objectives

Priority Issues	Conceptual Objectives
Point and Nonpoint Source Pollution • Stormwater runoff • Basinwide nonpoint source pollution • Sedimentation from unpaved roads, borrow pits, and gully erosion • Pollutant export from septic tanks • Potential wastewater treatment and reclamation improvements • Impacts to specific waterbodies ○ *Examples: Lake Jackson and Lake Talquin*	Improve water Lake Jackson and Lake Talquin water quality. Invest in agricultural and silviculture BMPs. Retrofit stormwater infrastructure to improve water quality treatment and hydrologic function. Address sedimentation abatement from unpaved roads and erosion sites. Connect residences and businesses to central sewer. Implement advanced passive onsite sewage treatment options. Support continuing wastewater collection and treatment improvements. Enhance monitoring programs, to identify trends, specific issues, and outcomes.

Watershed Specific Priorities and Objectives

Priority Issues	Conceptual Objectives
Floodplains and Hydrology • Opportunities for hydrologic and floodplain functional restoration • Estuarine riparian buffer loss; protection of tributary riparian systems • Sedimentation and physical impacts from unpaved roads, erosion, construction sites, and other sources • Hydrologic effects of landscape development	Prioritize and address hydrologic alterations. Identify and address needs for restoration of wetland and floodplain functions. Identify and address needs for restoration of vegetated riparian buffers. Limit effective impervious surface area. Prevent erosion and sedimentation from construction, erosion, and unpaved roads.

Watershed Specific Priorities and Objectives

Priority Issues	Conceptual Objectives
Aquatic and Wetland Habitat • Sedimentation impacts • Habitat impacts to listed freshwater mussels • Invasive species • Protection/restoration of shellfish habitat • Submerged aquatic vegetation (SAV) loss (Apalachee Bay)	Reduce sedimentation and turbidity. Identify and address opportunities for restoration of wetland and floodplain functions. Support management efforts to control, eradicate, and minimize the introduction or spread of invasive species.

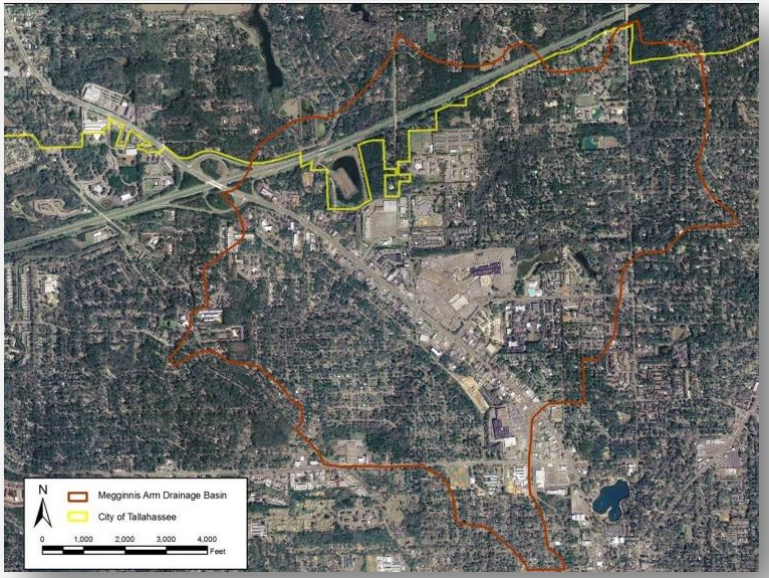
Watershed Specific Priorities and Objectives

Priority Issues	Conceptual Objectives
Coastal Resiliency • Shoreline destabilization/erosion • Opportunities for shoreline habitat and functional restoration • Sea level rise • Coastal storm impacts • Effects of land cover/land use changes	Identify opportunities to restore and protect shoreline habitats and functions. Evaluate and refine adaptation options in response to projected land use changes. Identify and implement a proactive approach to incorporating coastal resiliency concepts into planning, infrastructure, and future land uses.

Watershed Specific Priorities and Objectives

Priority Issues	Conceptual Objectives
Public Awareness and Education • Need for expanded community engagement opportunities • Need for opportunities for public engagement with resource management decision-making • Support and expand public awareness of basis for management programs and projects • Litter and debris entering inland and coastal waters	Expand watershed resource awareness and understanding through innovative, hands-on community-based restoration. Build upon efforts to establish long-term partnerships among stakeholders, including government, academic institutions, non-governmental organizations, businesses, residents, and others, to maximize effectiveness of project implementation and funding efforts. Reduce litter and debris entering waterways.

Implementation



An Array of Funding Resources

RESTORE Bucket 1 County MYIPs	**NFWF** Gulf Environmental Benefit Fund	**Florida Legislature**
RESTORE Bucket 2 Gulf Coast Ecosystem Restoration Council	**Florida Springs Restoration Funding**	**US EPA** Section 319 Grants
RESTORE Bucket 3 Florida Gulf Consortium	**NRDA** Natural Resource Damage Assessment	**Triumph Gulf Coast Inc.**
RESTORE Bucket 4 NOAA Science Program	**Florida Land Acquisition Trust Fund**	**TMDL Water Quality Restoration Grants**
RESTORE Bucket 5 FL Inst. of Oceanography	**Clean Water State Revolving Fund**	**FL Coastal Mgt Program**

Projects and Management Practices

Project/Practice	Objectives	Lead Entities
Urban Stormwater Retrofits	• Water quality improvement • Flood protection • Hydrologic restoration *Project examples:* *Ford's Arm Regional Stormwater Treatment Facility*	• Local governments
Basinwide Sedimentation Abatement	• Watershed assessment of impacts from unpaved roads and other sedimentation and erosion sites • Prioritize sites • Support implementation	• Local governments

Projects and Management Practices

Project/Practice	Objectives	Lead Entities
Agricultural Best Management Practices (BMPs)	• Water quality protection • Water use efficiency *FDACS agricultural BMP programs, including cost-share grants and BMP certification; cooperative efforts between public agencies and private landowners*	• FDACS • Gadsden County • NRCS • Private producers
Silviculture BMPs	• Water quality protection • Habitat protection *Florida's silviculture BMP program (FDACS); cooperative effort between public agencies and private landowners*	• FDACS • Private landowners • Public landowners
Lake Jackson Aquatic Preserve/OFW	• Comprehensive restoration plan *Stormwater treatment* *Septic connections to centralized wastewater treatment* *Advanced septic systems pilot project* *Public education and outreach* *And more*	• City of Tallahassee • Leon County • NWFWMD • FDEP • FDOH • Talquin Electrical Coop.

Projects and Management Practices

Project/Practice	Objectives	Lead Entities
Hydrologic Restoration	• Restoration of natural wetland and floodplain, hydrology • Stream channel restoration • Enhance resiliency through biodiversity and natural adaptation enhancement	• State and federal resource agencies • Local governments
Wetland Restoration	• Restore wetland functions: fish and wildlife habitat, floodwater storage, discharge regulation, water quality protection, aquifer recharge, and more • Enhance resiliency through biodiversity and natural adaptation enhancement	• Local governments • State and federal resource agencies

Projects and Management Practices

Project/Practice	Objectives	Lead Entities
Subbasin Plans	• Comprehensive restoration plans for targeted basins *Lake Jackson Management Plan – evaluation of alternatives* - *Stormwater treatment* - *Sediment quality remediation* - *Vegetation and habitat restoration*	• Local governments
Aquatic habitat Restoration	• Seagrass restoration • Oyster bed restoration • Tidal marsh hydrologic restoration • Support FWC efforts to protect, manage, and restore lacustrine and riverine aquatic vegetation communities	• Florida FFWC/FWRI • Local governments

Projects and Management Practices

Project/Practice	Objectives	Lead Entities
Riparian Buffer Zones and Littoral Zone Management	• Water quality protection • Shoreline Stability • Habitat • Enhance resiliency through biodiversity and natural adaptation enhancement • Targeted living shoreline projects for altered/eroding shorelines	• Private landowners • Local governments • Public land management agencies
Monitoring Program Development and Enhancement	• Develop targeted monitoring program • Identify trends • Support adaptive management • Data analysis; identify and quantify sources of NPS pollutant loading	• Local governments • FDEP • FFWC

Projects and Management Practices

Project/Practice	Objectives	Lead Entities
Water Reclamation and Reuse	• Protect water quality through improved treatment and reduced discharges • Water conservation/demand management • Conserve potable water sources *Water reclamation and reuse within Leon, Wakulla, Gadsden, Liberty and Franklin counties*	• Utilities • Local governments
OSTDS to Central Sewer Connections	• Connect areas served by OSTDS to central sewer systems • WWTF/WRF Improvements	• Utilities • Local governments • FDOH • FDEP
Advanced Technology OSTDS	• Implement affordable, new technology passive OSTDS in areas where connection to central sewer is not cost-effective *Advanced septic systems pilot project*	• Utilities • Local governments • FDEP • FDOH • NWFWMD

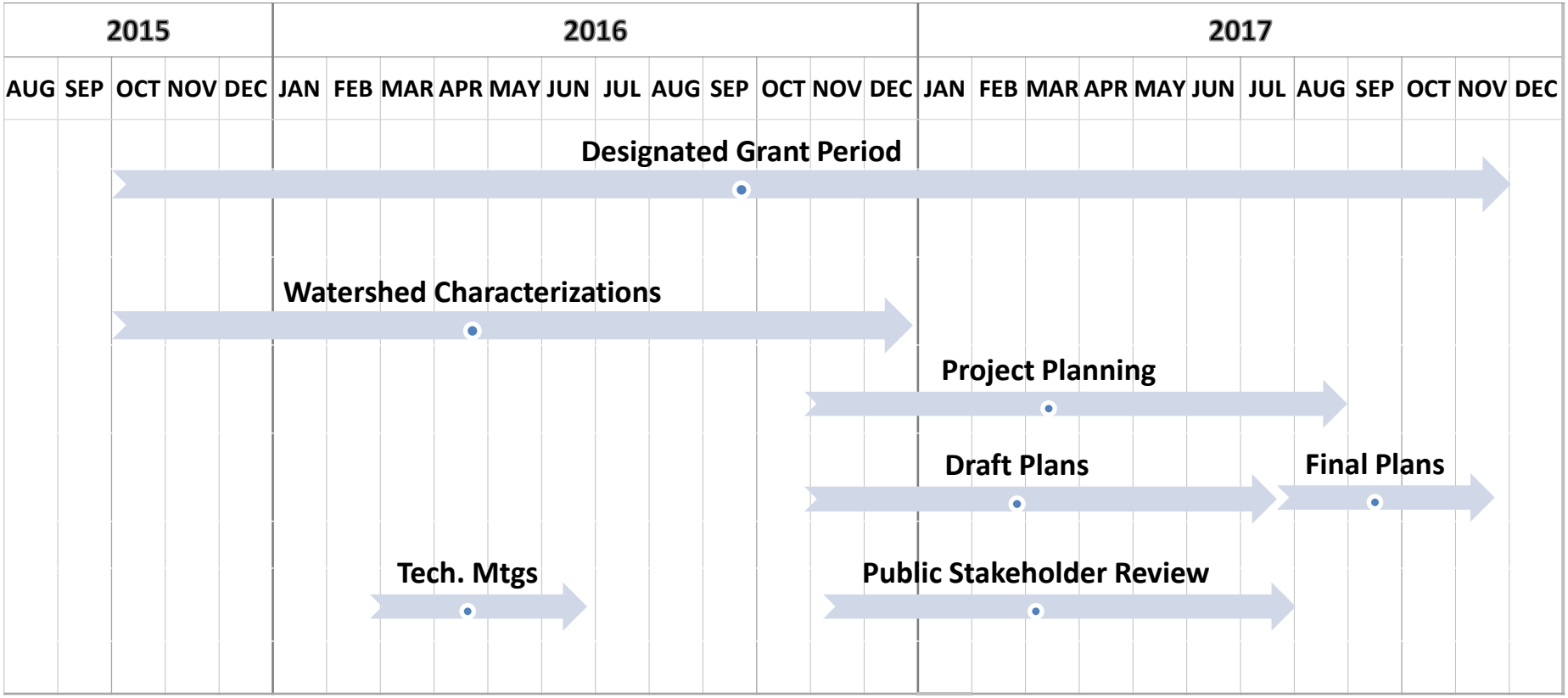
Projects and Management Practices

Project/Practice	Objectives	Lead Entities
Evaluation and Planning for Strategic Land Acquisition and Conservation	• Water resource protection for water quality, floodplain, and aquatic and wetland habitat protection	• Local governments • Private non-profit initiatives • FDEP
Watershed Stewardship Initiatives	Build citizen engagement opportunity and capacity, including: • Citizen science • Monitoring • Training and outreach	• Local Governments • IFAS Extension/Sea Grant

Criteria for Project Planning and Evaluation

- Infrastructure projects (stormwater and wastewater)
  - Projects should have responsible parties that will implement, own, operate, and maintain the facilities
  - Responsible parties should have dedicated funding source for operation and maintenance
- Restoration and habitat enhancement
  - Completed project should be naturally self-sustaining; not requiring frequent human intervention
  - Restoration should reflect ecosystems or habitats that are naturally supported in the watershed and physical environment
  - Completed restoration sites should be adaptable to natural change and variability – short-term and long-term

SWIM Plan Updates – Schedule



Thank you!

Ochlockonee River and Bay Resource Characterization:

http://www.nwfwater.com/Water-Resources/SWIM/SWIM-Plan-Updates

Please provide comments, recommendations, and questions to:
SWIM@nwfwater.com

Comments requested by March 10, 2017

For more information:

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