

# The Big Picture



## *The St. Andrew Bay Watershed*

*including St. Joseph Bay*







*Econfina Creek*

*Caring for a watershed is everyone's concern. Initiatives for the St. Andrew Bay watershed include:*

## The Northwest Florida Water Management District

The Northwest Florida Water Management District has purchased about 38,000 acres of river corridor, floodplain and **recharge area** in the Econfina Creek region. A **recharge area** is where water enters the ground through seepage to replenish an aquifer. The District is abating erosion at Sand Hill Lakes with the Orange Hill Soil and Conservation District and funds from the U. S. Environmental Protection Agency (EPA), administered by the Florida Department of Environmental Protection (DEP). The District is restoring natural vegetation and habitat (longleaf pine and wiregrass) and improving water quality in an area that supports several rare, endangered and threatened species as documented in botanical surveys.



*Smoothbark St. Johns Wort*

The District has mapped public lands and approached property owners about adding tracts to public preservation lands to better connect fractured habitats and restore **riparian** buffers. **Riparian** lands are the banks and floodplains of natural watercourses.

To prepare for restoration, the District requested a cultural resources survey. The survey documented 114 prehistoric aboriginal sites, seven historic American sites and seven sites that were both prehistoric and historic. Several arrowheads collected dated to the Paleoindians, 7-8000 B.C. The "Econfina" area—a Muskogee term for natural bridge—was used primarily for hunting and gathering by small groups throughout prehistory



*Early archaic projectile point*

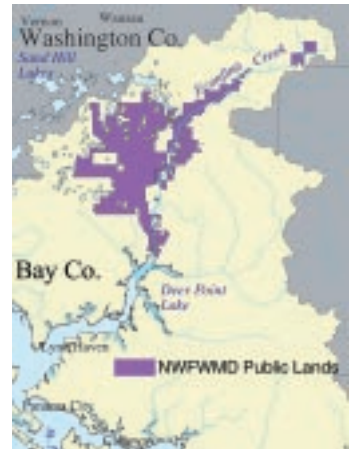
and history. The survey found three historic cemeteries, including a slave cemetery. It also recorded the mid-1800s William Gainer, Angus McQuage and William Walsingham homesteads. Gainer was a surveyor, famous for the diaries he wrote.

## SWIM Program

A program to protect surface waterbodies was developed with the Surface Water Improvement and Management (SWIM) Act of 1987. It asserts that where natural systems suffer from degraded water quality so does natural beauty, recreation, wildlife, drinking water and economic resources.

The St. Andrew Bay SWIM plan was developed cooperatively with the DEP, the Bay Environmental Study Team (BEST), the St. Joseph Bay Committee and other state and federal agencies, local government and private nonprofit organizations.

The SWIM plan includes projects to assess freshwater needs of the bay and reduce pollutant loading to the bay. The District will work with local governments to retrofit existing stormwater infrastructure and improve water quality. For more see [www.state.fl.us/nwfwmd](http://www.state.fl.us/nwfwmd).



## St. Andrew Bay Environmental Study Team (BEST)

BEST was formed in 1987, as a non-profit community organization that meets bi-monthly to exchange, review and coordinate information on protection strategies and development threats to the ecosystem.

To promote public consciousness that personal activities in the watershed affect bay resources, BEST distributes publications and operates a website ([www.standrewbest.org](http://www.standrewbest.org)). BEST created the Citizens Bayou Management Group to raise awareness that 59 bayous are impacted by stormwater runoff and sedimentation. As an example, Watson Bayou was impacted by a sawmill beginning in 1835, a paper mill beginning in 1931, fuel storage, wastewater treatment plants, boat construction, commercial fishing, and runoff and habitat loss due to residential development. Other bayous, such as Massalina Bayou, Martin Lake and Fred Bayou reflect similar experiences.

Norcross Wildlife Foundation funded a BEST survey of 1,000 vascular plants of Bay County and the Econfina Creek area, conducted by Dr. Edwin J. and Lisa Keppner. The collection may be viewed at the U.S. Fish and the Wildlife Service Field Office, Panama City, and the District office, Marianna.

BEST supported a survey of endemic crayfish and has proposed an inventory of wetlands and many other projects. Seagrass/oyster restoration in southern West Bay is a major BEST initiative with funding from the U.S. Army Corps of Engineers and Bay County.



Acknowledgements:  
Text by Faith Eidse. Design by Tracy Hunt. Editorial assistance by Ron Bartel, Duncan Cairns, Tyler Macmillan, Georgann Penson, Tom Pratt, Paul Thorpe and Lucinda Scott.

Produced by the Northwest Florida Water Management District, 81 Water Management Drive, Havana, Florida 32333-4712.

This document was printed at an approximate cost of \$.42 through the Northwest Florida Water Management District's Surface Water Improvement and Management Program, administered through the Department of Environmental Protection.

## Aquatic Preserves

The St. Joseph Bay and St. Andrew State Recreation Area aquatic preserves are recognized as exceptional water resources by the State of Florida. They were designated by the Florida Legislature for the purpose of preserving their biological resources and maintaining these resources in an essentially natural condition.

The 73,000-acre St. Joseph Bay Aquatic Preserve includes tidal lands, islands, extensive seagrass beds and other habitats in the bay and Gulf of Mexico.

The St. Andrew State Recreation Area Aquatic Preserve also includes an array of aquatic habitats in nearly 25,000 acres within the waters of St. Andrew Bay and the Gulf.

The preserves are managed by the DEP Office of Coastal Aquatic Managed Areas. Management plans have been developed to guide efforts to protect the resources of these preserves. The Aquatic Preserve program has also



produced boaters' guides for St. Joseph and St. Andrew bays. These guides help users learn about and experience these

**Green Turtle, St. Joseph Bay**

waterbodies while protecting sensitive resources.

## Resource Management Association

The St. Andrew Bay Resource Management Association (RMA) is a private initiative whose members are committed to the proper management of St. Andrew Bay and adjoining bays, lakes, tributaries and wetlands. The RMA sponsors noteworthy volunteer monitoring programs that have collected a considerable body of water quality and seagrass data. It coordinates both the Baywatch and Bay County Turtle Watch programs. Baywatch is a volunteer program that provides for long-term water quality monitoring in the St. Andrew Bay estuarine system and Lake Powell.

A seagrass monitoring program found seagrass beds behind Shell Island and in Grand Lagoon generally healthy with 100 percent coverage. Seagrasses in West Bay were more patchy with varying density. RMA has also placed propeller damage warnings at boat ramps. RMA's Turtle Program attempts to protect sea turtle nests, marking and sometimes relocating them. It opposes threats presented by high rise development, which are sometimes exempted from turtle lighting requirements. For more see [www.sabrma.org](http://www.sabrma.org).

## Wildlife Concerns

The St. Andrew Bay watershed supports extensive habitat for many terrestrial and aquatic species. To protect wildlife resources and critical habitats the U.S. Fish and Wildlife Service (FWS) and other agencies are studying and



**St. Joseph Bay**

managing piping plover, beach mice, Gulf sturgeon and other sensitive species. Considerable monitoring of water, habitat, and biological quality is being conducted by the DEP, the District, the RMA, the Florida Fish and Wildlife Conservation Commission and others. Sediments are also being monitored throughout the estuary by the FWS for a variety of chemical contaminants.

Restoration efforts have been proposed or are ongoing for a number of sites and waterbodies. These include Martin Lake, the Sand Hill Lakes and Watson, Massalina and Lynn Haven bayous. The Florida Departments of Health (DOH) and Agriculture and Consumer Services (DACS) monitor seafood for safety. The DOH has issued mercury health advisories for Bay County concerning consumption of largemouth bass, bowfin and gar. The DACS manages shellfish harvesting throughout the area to ensure that safe shellfish are collected for human consumption.

## Environmental Protection

The DEP is monitoring air quality for atmospheric mercury depositions near Deer Point Lake Reservoir. Stormwater and dredge and fill permits in Bay County have vastly increased in number as development increases. Municipalities, with the District and DEP, are addressing problem areas and planning stormwater treatment improvements.



**Young Brown Pelicans, Black's Island, St. Joseph Bay**



# About the St. Andrew Bay watershed

The St. Andrew Bay **watershed** is the only major basin that lies entirely within the Florida Panhandle. A **watershed** is an area that drains to a common point, in this case, the St. Andrew Bay **estuary**. An **estuary** is a body of water where fresh and salt water mix. Because this basin is entirely within one state, residents have a unique opportunity to influence activities and minimize impacts on their water resources.

The St. Andrew Bay watershed includes Deer Point Lake Reservoir, St. Joseph Bay and the interconnected St. Andrew, West, East and North bays. It covers about 750,000 acres in Walton, Washington, Jackson, Calhoun, Gulf and Bay counties—with 61 percent located in Bay County. Bay County presents the greatest influence and demand on the watershed with a population of over 148,000 in Panama City, Panama City Beach, Lynn Haven, Springfield, Callaway, Parker, Cedar Grove and unincorporated areas.

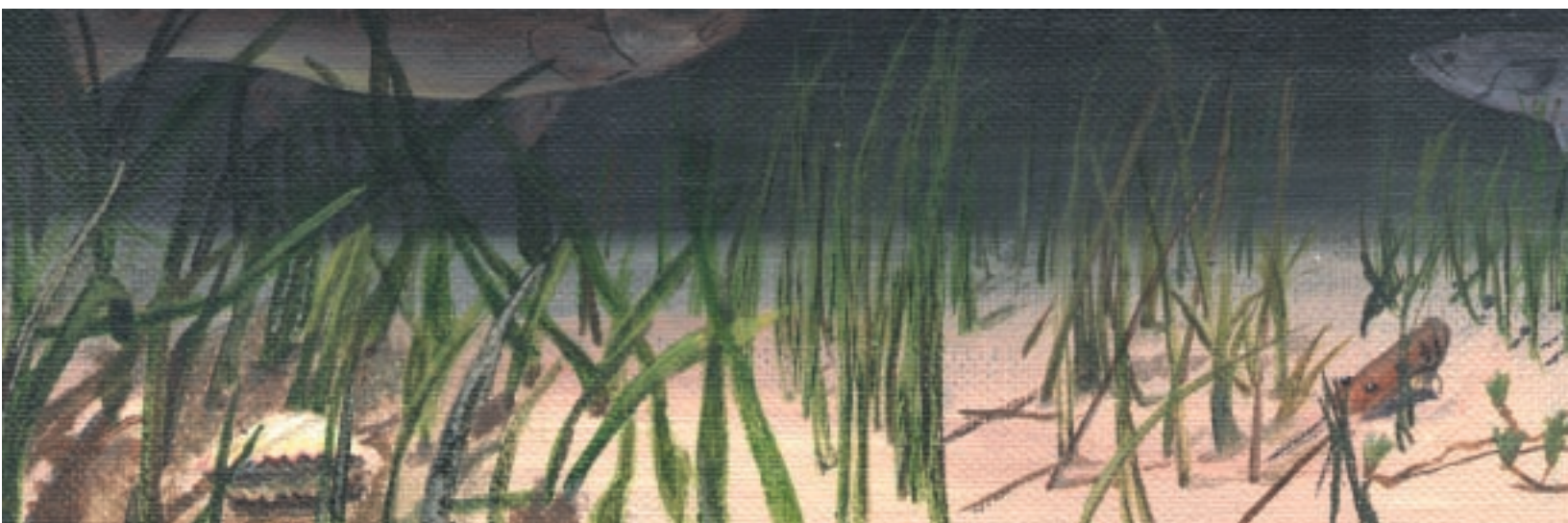
The St. Andrew Bay estuary and St. Joseph Bay support a rich ecology, recreational uses and highly productive fisheries. The Deer Point Lake Reservoir is the primary source of drinking water for Bay County, its fresh water discharge is critical to the ecology of the estuary. Econfina Creek is the reservoir's primary tributary, providing clean, fresh water from a number of springs along the creek.

North of Deer Point Lake, the Sand Hill Lakes area provides important natural and recreational resources, and is the primary recharge area for the Floridan Aquifer springs that discharge into Econfina Creek.

Also important in the watershed are many other streams and wetlands and several coastal dune lakes. One of these, Lake Powell, is a large lake that periodically opens to the Gulf through Phillips Inlet. It has been designated an Outstanding Florida Water due to its resource value.



*Deer Point Lake Reservoir*





# Water Quality Concerns

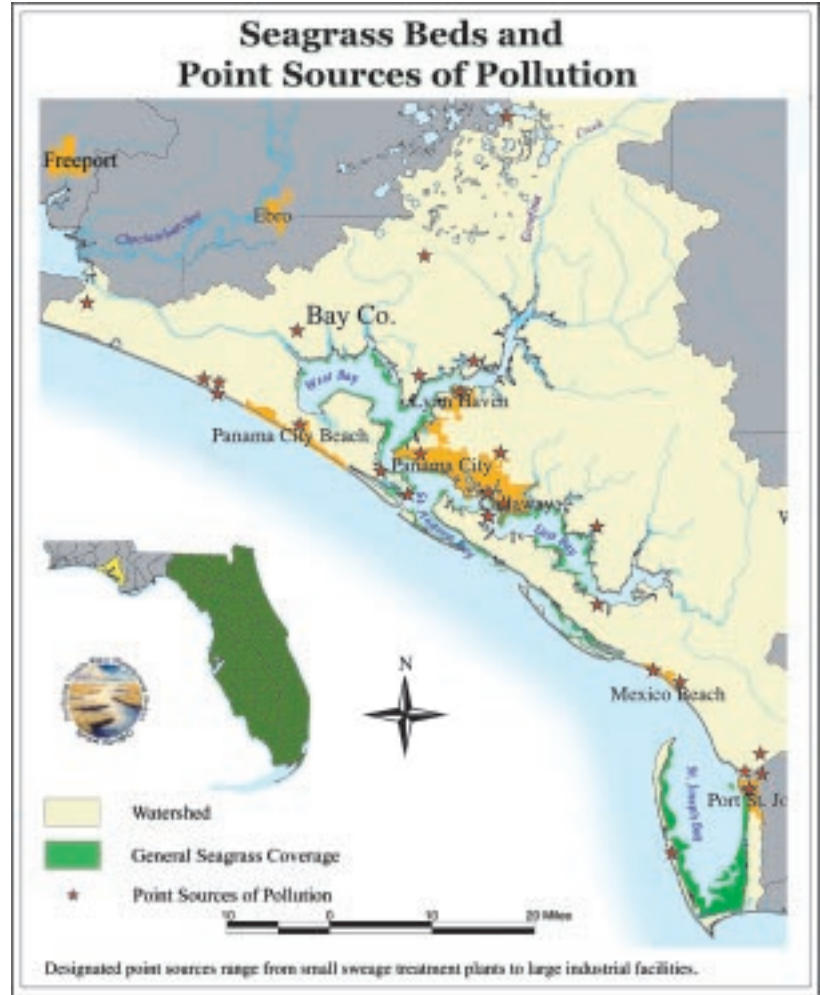


The two general sources of adverse impacts on water quality are **point** and **nonpoint source pollution**. **Point source pollution** can be traced to a single identifiable source, such as a discharge pipe. **Nonpoint source pollution** comes from diffuse sources such as stormwater runoff that collects sediment, nutrients, bacteria, pesticides, heavy metals, oil and grease.

Stormwater runoff is considered the primary water quality threat in most of the watershed. It causes habitat degradation, fish kills and closures of shellfish beds and swimming areas.

Urban landscapes produce the greatest nonpoint source pollutant loading, followed by agricultural and lower intensity land uses. Intense development also tends to fragment wildlife habitat by cutting into and eroding natural features. Natural forests and wetlands store floodwaters, stabilize shorelines, filter pollutants, recycle nutrients and provide rich habitats and nurseries.

An Advanced Wastewater Treatment plant was built by Bay County in 1999, which eliminated five small point source discharges and uses reclaimed water for upland irrigation. Other improvements to wastewater treatment and disposal are also being developed.







Blue Spring, Washington County

## Environmental Citizen

### what **YOU** can do:

- If you boat into shallow **seagrass beds**, **stop** your motor, tilt it up and push or pole through
- To save seagrass beds, **limit or share piers**
- Elevate piers 5 feet above mean high water and use widely spaced narrow boards or grating to prevent **seagrass loss** due to shade
- If an adult bird **flushes** near your feet, **stop**, **look** for a nest and **move away cautiously**
- **Turn off, shield or redirect** exterior lights from the beach during May 1-October 1 to prevent luring hatched turtles inland
- **Don't** drive on the **beach**
- **Don't** throw trash, toxins or waste into your **watershed**
- Food chains contaminated by toxins may severely injure **top predators** like eagles, dolphins, turtles and humans
- Keep your **engine** tuned
- **Clean** your **boat** often with small amounts of non-toxic cleaner
- Minimize wakes near shore to prevent erosion
- Maintain a **vegetation** buffer of at least 25 feet near a waterbody
- Minimize coastal construction to **sustain dunes** and reduce danger and loss from storms and hurricanes

*Wide natural vegetation buffers and dedicated conservation lands protect water quality and preserve valuable habitat for current and future generations.*



St. Joseph Bay

courtesy Tammy Summers, St. Joseph Bay Aquatic Preserve

## seagrass signals ecosystem health

Nearly 20,000 acres of seagrasses extend through the St. Andrew and St. Joseph bays, the most extensive and diverse seagrass communities in the Florida Panhandle. Seagrass beds are highly productive areas that provide nursery and protective habitat for many fish and shellfish, help to stabilize sea beds and shorelines and produce detritus (decaying organic material), an important element of marine and estuarine food webs. The productivity of seagrass beds is especially important in St. Joseph Bay, which lacks substantial freshwater inflow.

Many species important for commercial and recreational fishing live in these seagrasses including bay scallop, spotted seatrout, blue crab, mullet, penaeid shrimp and redfish. Five species of seagrasses grow in St. Andrew, North, West, East and St. Joseph bays: turtle, Cuban shoal, manatee, widgeon and star.

Turtle grass is the dominant species, followed by shoal and manatee grasses. Shoal grass is a pioneer species and may be dominant where conditions aren't stable enough for turtle grass coverage. Manatee grass intermixes with other species. Star grass is patchy in the bays, and widgeon grass occurs in areas of greater freshwater flow.

Seagrass communities are sensitive to human impacts, such as excessive nutrient loading from lawn fertilizer or wastewater. These can cause algae blooms, which decrease light needed for seagrass growth. Light also decreases with suspended solids from stormwater runoff and from dredging and dragging of commercial fishing gear. Boat propellers may also scar and damage seagrasses. Studies comparing aerial photographs show a 17 percent loss of seagrass coverage since 1953 in St. Andrew, West, North and East bays.