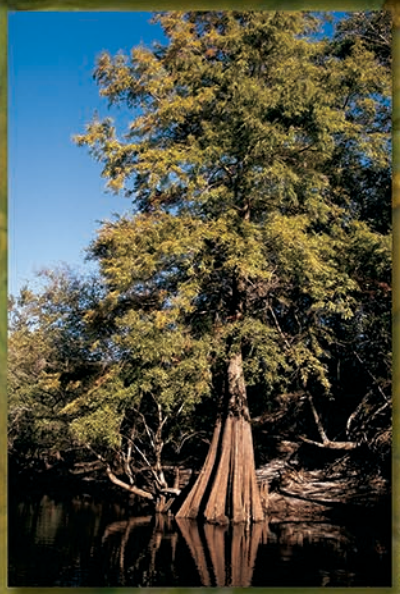
St. Marys River

Management Plan



saintmarysriver.org

St. Marys River
Management Committee
May 2003

St. Marys River Management Committee

Post Office Box 251 • Folkston, Georgia 31537

River Management Plan Task Force

With a great deal of pride and relief, we present the inaugural river management plan. Although what follows makes for dense reading, it's worth the effort.

In some regards what you hold in your hands has been eleven years in the making. The push began with the Coleraine Envisioning in 1998, included some searing moments in the public eye, and wrapped up with a spirited reception of the plan by the four County Commissions last fall.

In introducing this plan, three themes come to mind. As Nick Deonas and Bob Bendick each have put it, far from being something that separates two states, this river brings people together. This has led to our overriding mission of bringing the various jurisdictions together. Secondly, as Winifred Stephenson requested at one of the first Task Force meetings, we have tried to make this plan something that the average person, interested in the health of the river, would find useful. Finally, we have pursued the Plan by the consensus of a diverse Committee and community and in our spare time, no doubt accounting for its modest pace. Rather than being the least common denominator, we believe this plan is the stronger for the diversity of opinion from which it comes.

We would like at the outset, to thank our partners and sponsors without whom this plan would not have been possible. First and foremost, the St. Johns River Water Management District, The Nature Conservancy and White Oak Plantation have been material and unfailing in their support. Secondly, the counties of Camden and Charlton, Georgia and Baker and Nassau, Florida have been there for us since they created us. Finally, we want to express our appreciation to our contractor, Pandion Systems, for their expertise, public-mindedness and above all else, their patience.

With the plan complete, the Committee has begun its implementation. A task force of the Committee is pursuing our top priority: the coordination among the counties of septic system regulations. We hope to soon begin on our second priority: the coordination of recreational regulations, often called "bank-to-bank" legislation.

If you are interested, we urge you to join our efforts.

G. W. Varn Jr.

George W. Varn, Jr.
Chair

Kraig McLane, SJRWMD
Vice Chair

Don Harrison

Don Harrison, Ga. DNR

Joe Hopkins

Mac McCollum III

Mike Parris

Winifred Stephenson

Winifred Stephenson

Charlie Webb (1948 - 1999)

The St. Marys River Management Committee is an intergovernmental entity of elected and appointed members from the four counties fronting the river: Charlton and Camden, Georgia, and Nassau and Baker, Florida.
The committee advises the four county commissions and provides a public forum on issues concerning the St. Marys.

Four-county Resolution
St. Marys River Management Plan

Whereas the St. Marys River Management Committee was formed in 1993 by the four counties via interlocal agreement, and

Whereas the counties have supported the work of the St. Marys River Management Committee to produce a management plan for the St. Marys River, as stated in the interlocal agreement, and

Whereas the Committee has held four public workshops, envisioning exercises, and two workshops with the boards of the four counties specifically on the river management plan and the input from those meetings has been incorporated into the plan, and

Whereas the scenic, natural, recreational, and economic values of the St. Marys River may be adversely affected by the rapid growth taking place in the river corridor, and

Whereas the St. Marys River Management Committee strives to conserve the River's attributes for present and future generations under local efforts, now therefore,

Be it resolved that Camden and Charlton counties, Georgia and Baker and Nassau counties, Florida, endorse the priority strategies, accepts the plan as a direction setting tool, understands that the plan is not self-executing – in that each board will have to approve actions of legislative nature, and directs the St. Marys River Management Committee to work with county employees and others to recommend specific measures for implementation.

Camden County, Georgia

1-28-02

Stephen L. Berry — **Date**
Commission Chairman

Charlton County, Georgia

Jessie Smith — **Date**
Commission Chairman

Baker County, Florida

01-14-02

Julie B. Combs — **Date**
Commission Chairman

Nassau County, Florida

Nick D. Deonas — **Date**
Commission Chairman

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I. Executive Summary

The St. Marys River is considered one of the most beautiful and unique streams in northeastern Florida and southeastern Georgia, with outstanding natural habitat areas and recreational resources. It is a remote blackwater stream that forms the border between the two states, and has excellent water quality with a lack of urban development and few pollution discharge points. The St. Marys River supports extensive fresh water wetlands and tidal marsh systems and feeds and connects the Cumberland Sound and Amelia River estuarine systems. Prehistoric peoples, Native Americans, early European settlers, pirates, and Americans have all used the St. Marys River basin as a hunting ground, settlement area, transportation route, commercial area, and recreational zone.

The St. Marys River Management Committee (Committee or SMRMC) was formed in 1991, when the river was being considered for inclusion in the federal Wild and Scenic Rivers program. In 1993, via an interlocal agreement between the four counties that surround the river (Baker and Nassau counties in Florida, and Charlton and Camden counties in Georgia), the four counties established the SMRMC as its advisor on matters concerning the river. The Committee seeks to maintain local management and control of the river to the maximum extent possible. The St. Marys River Management Committee consists of 20 representatives from the four counties that border the river and comprise most of the basin: Charlton and Camden counties of Georgia, and Baker and Nassau counties of Florida. Each of the county commissions appoints one commissioner and four private volunteer citizens, two of which must own property fronting the river. Two nonvoting members represent Georgia's Department of Natural Resources and Florida's St. Johns River Water Management District (SJRWMD).

The Committee's goal is to promote and protect the long-term viability of both the environmental and economic resources of the St. Marys River in a way that retains local control, protects property rights, and fosters cooperation among individuals, governments, and agencies at all levels. The Committee developed this management plan to identify issues and recommend solutions related to the management of the St. Marys River. Pandion Systems, Inc. was contracted to develop this plan in April 2000. Development of the St. Marys River Management Plan is based on a number of tasks that included review of existing information, public comment and input, and scientific and planning analysis.

Specific goals of the St. Marys River Management Plan are to:

1. Protect the water quality of the St. Marys River and improve degraded segments as defined by state law.
2. Provide for flood protection through nonstructural, natural functions of the St. Marys River.
3. Protect natural systems in the St. Marys River corridor; for example, maintain minimum flows and levels and protect biodiversity.
4. Provide for recreational and public uses of the St. Marys River that are compatible with the previous goals and consistent across county and state boundaries.

5. Provide for local-local, local-state, and local-state-federal intergovernmental coordination and relations in the management of the St. Marys River.

The St. Marys River Management Plan evaluates seven major river resources: water quality, groundwater, floodplains, natural systems, recreational and public use, economic development, and government policy. These river resource components were identified as requiring evaluation and/or management during the 1998 St. Marys River visioning process. This study does not evaluate the cultural and historical resources of the river. For each of the evaluated resources, existing and projected conditions are described, recent accomplishment are outlined with specific issues associated with management of the St. Marys River, and strategies for addressing these issues are recommended. The planning horizon is 15 years, with the main emphasis on the river corridor and secondarily on the river basin.

The following list provides the strategies considered to be the most important, in priority order, by the committee and the four county commissions.

River Corridor Management and Intergovernmental Coordination

1 Establish consistent septic system setbacks on both Florida and Georgia sides of the river (Committee, local governments)

2 Promote bank-to-bank legislation to unify recreation and wildlife management laws (Committee)

3 Evaluate each County's land use pattern as reflected in their Comprehensive Plans and encourage consistency with river protection, using Best Management Practices (BMPs), and similar measures (Committee subcommittee/local governments)

4 Encourage proper maintenance of septic systems within the river corridor (Committee, state agencies, local governments)

5 Design shoreline guidelines/incentives e.g. river corridor, vegetative buffers, and setbacks (Committee subcommittee/local governments)

6 Promote conservation easements and/or less-than-fee acquisitions that maintain a forest-based economy and protect river resources by continuing compatible agricultural uses, such as tree farming

7 Continue and expand annual river cleanups (Committee/WA)

8 Continue and expand publications programs: River Guide, POSM newsletter, and website (Committee/WA)

9 Integrate the St. Marys River management plan into other natural resource management plans, comprehensive plans, and conservation programs on an on-going basis

10 Hire cost effective Committee administrative assistance to enhance effectiveness and communication – emphasize outsourcing (Committee)

11 Establish a St. Marys River library/information clearinghouse/database for use by Committee, citizens, local government agencies (Committee/Watershed Association[WA])

12 Monitor Total Maximum Daily Load (TMDL) programs in both states (Committee)

The issues affecting the river now and in the future can be addressed through the coordination and management of a local committee. Several additional studies are recommended including a recreational management plan study to more specifically identify recreational users, develop user and recreational guidelines, and determine carrying capacity, and establish specific monitoring strategies.

Table 1: Recommended Strategies for Management of the St. Marys River

ISSUE	STRATEGY	STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
				RIVER	BASIN	RESPONSIBILITY	PROCESS		
River Basin Management and Intergovernmental Coordination	Evaluate each County's land use pattern as reflected in their Comprehensive Plans and encourage consistency with river protection, using Best Management Practices (BMPs) and similar measures	**3**	Provides for consistent land use decisions and protects corridor resources	✕		Local action by SMRMC subcommittee and local governments	Adoption is voluntary, mandatory if adopted	Monitoring by Committee	Long Term
	Promote bank-to-bank legislation to unify land use, recreation, and wildlife management laws	**2**	Provides for consistent land use decisions and protects river corridor resources	✕		Local action by local governments	Adoption is voluntary, mandatory if adopted	Self monitoring by local association in cooperation with local and state governments	Short Term
	Design shoreline development guidelines/incentives, e.g. river corridor vegetative buffers and setbacks	**5**	Guides shoreline development and construction and provides incentives to protect resources	✕		Local action by SMRMC subcommittee and local governments	Adoption is voluntary; Participation in incentives is voluntary if adopted	Subcommittee/local government develops design guidelines and incentives for new development; Local governments adopt rules; Builders are rewarded for meeting environmental standards.	Long Term
	Hire cost-effective Committee administrative assistance	**10**	Enhance effectiveness and communication	✕	✕	Local action by SMRMC	Voluntary	Emphasize outsourcing	Short Term

ISSUE	STRATEGY	STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
				RIVER	BASIN	RESPONSIBILITY	PROCESS		
River Basin Management and Intergovernmental Coordination (continued)	Establish a St. Marys River library/information clearinghouse/database for use by Committee, citizens, local government agencies	11	Provides citizens, associations, and governments with access to comprehensive information for sharing, learning, and reporting functions.	X	X	Local action by SMRMC	Voluntary	Self-monitoring by local association in cooperation with various data sources	Long Term
	Create a nonprofit watershed association		Provides association to carry out public awareness, river education, outreach, publications, media, and land trust programs	X	X	Local action by SMRMC	Voluntary	Nonprofit association guided by SMRMC; Committee identifies funding for association and hires watershed administrative assistant.	Long Term
	Sponsor workshop(s) for county/state planning agencies to coordinate consistent river corridor planning		Provides better river corridor planning and management	X		Local action by local governments, regional planning or development councils, and state agencies (i.e., SJRWMD)	Voluntary	Monitoring by local association in cooperation with government enforcement actions	Long Term
Protection of Surface Water Quality	Monitor Total Maximum Daily Load (TMDL) programs in both states	12	Monitors establishment of TMDLs for surface waters	X	X	Federal requirement	Mandatory under federal Clean Water Act; Local participation is voluntary; Meetings are taking place now (2000+)	Local representatives participate in regional meetings (FDEP, GEPD) where TMDLs are set; Monitoring of process done by SMRMC.	Short Term

GEPD: Georgia Environmental Protection Division
FDEP: Florida Department of Environmental Protection

ISSUE	STRATEGY	STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
				RIVER	BASIN	RESPONSIBILITY	PROCESS		
Protection of Surface Water Quality (continued)	Investigate "Special Waters" designations in Florida and Georgia		Maintains existing water quality and prevents degradation by regulating existing and new pollution sources	X		Local action to nominate river for state designation	Voluntary nomination of river; Mandatory water quality standards if designated	Committee evaluates state programs for GA or FL designation (e.g., OFW)	Long Term
	Promote public agency coordination for surface water quality monitoring and request reports on water quality for non-technical audiences		Improves water quality understanding and sampling efficiency	X	X	Sampling already being done by FDEP, GEPD, USGS, SJRWMD, EPA	Ongoing	Ongoing sampling gets regular encouragement, review, and follow up by local association.	Long Term
Protection of Ground Water Quality	Establish consistent septic system setbacks on both Florida and Georgia sides of the river	1	Provides consistency of septic setbacks and reduces uneven development pressures	X		Local action through comprehensive planning process	Adoption is voluntary; mandatory if adopted	Monitored by Committee through comprehensive planning revisions and local planning board site plan approval	Long Term
	Encourage proper maintenance of septic systems within the river corridor	4	Reduces existing threat to groundwater and river water quality from existing systems which are not properly maintained	X		Committee, state agencies, local governments	Required by existing state law and local health departments	Public education campaign and periodic review by local health departments and Committee	Long Term
Protection of Floodplain Functions	Investigate protecting floodplain storage by encouraging local governments to adopt model shoreline ordinance		Local governments adopt a model ordinance to protect natural floodplain functions	X	X	Local government action based on SJRWMD model ordinance	Adoption by four counties is voluntary; Mandatory rules if adopted	Committee encourages adoption of ordinances; Local building and development authorities monitor compliance	Short Term

OFW: Outstanding Florida Waters
USGS: United States, Geological Survey

ISSUE	STRATEGY	STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
				RIVER	BASIN	RESPONSIBILITY	PROCESS		
Protection of Floodplain Functions (continued)	Encourage local governments to participate in the National Flood Insurance Program's Community Rating Service in which reduced flood insurance premiums act as an incentive to improve ordinances on floodplain protection		Protects floodplain functions, thereby saving lives, reducing property damage, and gaining reduced federal flood insurance premiums	X	X	Local action to take advantage of federal incentive program	Adoption is voluntary; Mandatory actions if adopted	Watershed association or SMRMC task force encourages local governments to take actions to protect floodplain functions; Possible actions include rules, public education, etc.	Long Term
Protection of Natural Systems	Integrate the St. Marys River Management Plan into other natural resource management plans, comprehensive plans, and conservation programs on an on-going basis	9	Focuses on the management of whole systems rather than parts and provides for an integrated planning and management process		X	Local action to take advantage of existing programs	Voluntary	Watershed association encourages cross-boundary management coordination through existing programs (e.g., Florida Ecosystem Management Areas, Georgia River Basin Planning Initiative); Management plans are regularly reviewed and updated with new scientific information.	Long Term
	When private land that has important resource value becomes available for purchase, advise private landowners of nonprofit and governmental conservation easement and land acquisition programs		Protects and manages sensitive natural areas	X	X	Local action to propose land protection projects	Voluntary local action to propose projects; Government (municipal, county, state, federal) or private action to undertake projects	Watershed association provides information to help land sellers take advantage of existing funding (e.g., Florida Forever, Georgia Greenspace, federal Land and Water Conservation Fund)	Long Term

ISSUE	STRATEGY	STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
				RIVER	BASIN	RESPONSIBILITY	PROCESS		
Protection of Natural Systems (continued)	Continue to encourage, enhance, and support stewardship opportunities on private lands		Protects and manages natural resources	✖	✖	Individual or local action to take advantage of existing land protection incentives	Voluntary	Watershed association publicizes land stewardship incentive programs or conservation easement programs to private landowners; New incentives may be developed or proposed; Individuals or communities voluntarily participate.	Long Term
Provision for Recreational Opportunities	Create a corridor recreation plan to enhance recreational opportunities and businesses		Establishes recreational zones that provide a variety of opportunities, prevents conflicts, and establishes carrying capacity indicators to monitor impacts of increasing demand	✖		Local action by SMRMC with expert input	Voluntary planning effort; Mandatory if rules are adopted	Watershed association leads cross-boundary planning effort with input from state recreational agencies (GDNR, FFWCC); Local governments may adopt recreational rules if necessary.	Short Term
Provision for Public Outreach and Education	Continue and expand annual river cleanups	**7**	Continues programs to perform annual river cleanups and improve river recreational sites	✖		Local action	Voluntary	Committee or watershed association continues cleanup and access development activities	Long Term
	Continue and expand publications programs: River Guide, POSM newsletter, and website	**8**	Continues programs to publish the *St. Marys River Guide, POSM* newsletter and website	✖		Local action	Voluntary	Committee or watershed association continues to update and produce the *POSM* newsletter and website and the *St. Marys River Guide*; Future guides include expanded details about fishing and hunting rules and cross-boundary enforcement reciprocity; Actions are assessed for their level of public involvement.	Long Term

ISSUE	STRATEGY	STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
				RIVER	BASIN	RESPONSIBILITY	PROCESS		
Provision for Public Outreach and Education (continued)	Solicit assistance to design a media effort to increase local knowledge of river issues, enforcement, and protection activities		Increases local citizens' knowledge of river issues and protection activities	X	X	Local action	Voluntary	Watershed association or task force undertakes marketing campaign; Marketing activities (e.g., mascot, advertisements, river slogan, etc.) may be assessed for their impact on public knowledge and opinion.	Long Term
	Solicit assistance to develop a St. Marys River ecology/stewardship curriculum for local schools in cooperation with existing state and SJRWMD education programs		Educates students about the ecology and stewardship of their local river in the classroom	X	X	Local action	Voluntary	Watershed association with educator volunteers undertakes curriculum and activity design; Various student assessment methods provide for evaluation.	Long Term
	Host a river conference periodically to foster intergovernmental coordination and provide a forum for public river awareness		Involves citizens in a St. Marys River stewardship conference and educates citizens with broadly distributed stewardship information	X	X	Local action	Voluntary	SMRMC task force researches stewardship actions and programs available in Georgia and Florida; Success is measured by number of citizens participating in conference, by information requested and distributed, and by number of new local participants in stewardship programs (e.g., forest stewardship programs, backyard wildlife programs)	Long Term

ISSUE	STRATEGY	STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
				RIVER	BASIN	RESPONSIBILITY	PROCESS		
Provision for Public Outreach and Education (continued)	Encourage initiation of a "river-neighborhoods" program		Educates and recognizes neighborhoods or communities who reduce pollutants, protect green space, and provide wildlife habitat	X	X	Local action	Voluntary	Watershed association or task force develops "river neighborhood" certification based on existing models (e.g., Florida Yards and Neighborhoods); Success is determined by number of neighborhoods participating.	Long Term
	Continue stakeholder consensus-building activities with periodic workshops to review plan accomplishments and generate additional public support		Builds public support and involves stakeholders in future decisions	X	X	Local action with input of expert facilitators, if desired	Voluntary effort	SMRMC leaders or staff gain facilitator training; expert facilitators are hired to guide public meetings as necessary.	Short Term
	Hold a periodic public water quality conference		Updates stakeholders on the status of river water quality	X	X	Local action with data from existing monitoring programs	Voluntary	Committee or watershed association plans and organizes conference.	Short Term
Planning for Economic Development	Promote conservation easements and/or less-than-fee acquisitions that maintain a forest-based economy and protect river resources by continuing compatible agricultural uses, such as tree farming	**6**	Maintains a forest-based economy and protects river resources by continuing compatible agricultural uses, such as tree farming	X	X	Coordinated local action	Promotion of programs for voluntary local or individual participation	Committee/subcommittee explores and promotes conservation easement and less-than-fee acquisition programs that might help to maintain a forest-based economy.	Long Term
	Designate a subcommittee to explore establishment of incentives for businesses compatible with river management goals		Captures greater share of revenues in local services	X	X	Coordinated local action	Voluntary coordination and planning effort	Committee/subcommittee explores with local economic development leaders the coordination of incentives for local river-related businesses such as job training programs or tax relief.	Long Term

II. Introduction

The St. Marys River Management Plan has been developed to provide the St. Marys River Management Committee and local government leaders with guidance on managing the river for the next 10 to 15 years. The plan seeks to maintain local management and control of the river using cost-effective, creative, and scientifically sound strategies and emphasizing the use of incentives and voluntary cooperation to accomplish the management and conservation goals established for the St. Marys River. The plan also addresses the need for consistent river protection strategies across boundaries and emphasizes intergovernmental coordination.

The St. Marys River Resource

The St. Marys River is a healthy 130-mile-long blackwater stream that forms the border between northeastern Florida and southeastern Georgia. It originates in the Okefenokee Swamp and flows into the Cumberland Sound and Atlantic Ocean. It has a basin area of approximately 1,610 square miles (60 % in Florida, 40% in Georgia). Its freshwater and estuarine wetlands are bordered by relatively little development and exhibit excellent water quality for much of the river's length. Population density in the basin is low, with highest densities in Fernandina Beach and Macclenny. The cities of St. Marys and Kingsland at the mouth of the river are rapidly growing because of their association with Kings Bay Naval Base, retirement settlement, and ecotourism activity focused on Cumberland Island National Seashore.

Land cover within the St. Marys River watershed is primarily forest, with much of the area in managed pine plantations. The St. Marys River provides many recreational opportunities; canoeing, boating, fishing, camping, and water-skiing are popular activities. Some public lands in the basin are the Okefenokee Swamp National Wildlife Refuge at the headwaters of the river, and the Ralph E. Simmons Memorial State Forest located along the Florida bank of the river northeast of the community of Boulogne.

Other significant characteristics of the St. Marys River include:

- The St. Marys River has excellent water quality for much of its length, with a lack of urban development and few pollution discharge points (Macclenny, Fernandina Beach, Kingsland, St. Marys, and Folkston wastewater treatment plants and three pulp mills in the estuary). Over 85% of the basin is covered in forests and silvicultural lands.
- The St. Marys River supports extensive freshwater wetlands and tidal marsh systems and feeds and connects the Cumberland Sound and Amelia River estuarine systems.
- The St. Marys River basin supports the growth of timber and pulpwood that is the basis for the predominant economic activity of the basin and maintenance of good water quality.
- The St. Marys River provides a continuous water and land corridor from the Okefenokee Swamp National Wildlife Refuge, Osceola National Forest, and Pinhook Swamp area (The Nature Conservancy), through the Ralph E. Simmons Memorial State Forest (Florida), and large private tracts and private preserves (e.g., White Oak

Plantation), to the Cumberland Island National Seashore, Fort Clinch State Aquatic Preserve (FL), and the Atlantic Ocean.

- The St. Marys River basin provides habitat for a diversity and abundance of native wildlife. The St. Marys River basin provides critical habitat for a number of endangered, threatened, or rare plants and animals, including the Atlantic sturgeon, Florida black bear, Sherman's fox squirrel, red-cockaded woodpecker, flatwoods salamander, eastern indigo snake, and gopher tortoise. The basin also provides valuable foraging, roosting, and nesting habitat for a variety of wading birds. The river and its associated estuaries support commercial and recreational fisheries.
- Native Americans, early Spaniards, pirates, and European-Americans have used the St. Marys River basin as a hunting ground, settlement area, transportation route, commercial area, and recreational zone. The early history of the St. Marys River basin needs further documentation.
- The St. Marys River is considered to be one of the most beautiful streams in north Florida/south Georgia, with outstanding natural habitat areas and recreational resources. There is potential for the expansion of tourism based on the St. Marys River resource, limited only by resource protection needs and availability of tourism support services.
- The St. Marys River provides educational opportunities for local communities and visitors alike.

Management of the St. Marys River

In 1991, the St. Marys River Management Committee (Committee or SMRMC) was formed when the river was being considered for inclusion in the federal Wild and Scenic Rivers program. The Committee seeks to maintain local management and control of the river to the maximum extent possible. The St. Marys River Management Committee consists of 20 representatives from the four counties that border the river and comprise most of the basin: Charlton and Camden counties of Georgia, and Baker and Nassau counties of Florida. Each of the county commissions appoints one commissioner and four private volunteer citizens, two of which must own property fronting the river. Two nonvoting members represent Georgia's Department of Natural Resources and Florida's St. Johns River Water Management District (SJRWMD).

The Committee's goals are to promote and protect the long-term viability of both the environmental and economic resources of the St. Marys Basin in a way that retains local control, protects property rights, and fosters cooperation among individuals, governments, and agencies at all levels. The Committee is sponsoring development of a management plan that identifies issues and recommends solutions related to the management of the St. Marys River.

Footnote: Use of secondary or cited sources within the plan does not represent endorsement by the St. Marys River Management Committee.

III. Goals and Guiding Principles

Goals for the St. Marys River Management Plan

One major purpose of the St. Marys River Management Committee is to

> *create a comprehensive plan for the St. Marys River corridor and tributaries, based on good science, which protects water quality and quantity and involves participation from both states.*

Specific goals of the St. Marys River Management Plan

1. Protect the water quality of the St. Marys River and improve degraded segments as defined by state law.
2. Provide for flood protection through nonstructural, natural functions of the St. Marys River.
3. Protect natural systems in the St. Marys River corridor, for example, maintain minimum flows and levels and protect biodiversity.
4. Provide for recreational and public uses of the St. Marys River, which are compatible with the previous goals and consistent across county and state boundaries.
5. Provide for local-local, local-state, and local-state-federal intergovernmental coordination and relations in the management of the St. Marys River.

Results of the 1998 St. Marys River Community Envisioning Process

The overall community vision for the St. Marys River is

> *To protect the scenic beauty and ecological health of the St. Marys River watershed for the benefit of present and future generations. This can be accomplished through coordinated local action that involves the full spectrum of the basin's citizens and through increased public education efforts that foster greater awareness, appreciation, and stewardship of the basin's resources.* (SMRMC 1998)

St. Marys River Management Plan Guiding Principles

Guiding principles for the St. Marys River Management effort include:

- Plan for the St. Marys River Management Committee and local government leaders to manage the river over the next ten to fifteen years.
- Strongly emphasize maintaining the serenity, solitude, and pristine beauty of the river.
- Plan for the watershed in both Georgia and Florida, with primary focus on the river corridor and secondary focus on the river basin.
- Involve and inform local government leaders, the St. Marys River Management Committee, and the public.
- Use cost-effective, creative, scientifically sound strategies to meet goals.
- Use incentives and voluntary cooperation to accomplish conservation goals.
- Emphasize public education and awareness.
- Develop consistent river protection standards across boundaries and emphasize intergovernmental coordination.

The St. Marys River Management Plan will have the following components and attributes:

- Provide the Committee with information and strategies on the natural and economic resources of the area that are closely associated with the health of the St. Marys River;
- Provide intergovernmental coordination strategies that are essential for the protection of the river;
- Identify short-term and long-term strategies for protection and management of the St. Marys River;
- Contain model legislation that can be adopted by local governments on both sides of the river and be sensitive to the needs of the four county governments and two state governments; and,
- Be based on the best science and planning practices to protect water quality and quantity in the St. Marys River.

IV. Approach and Methods

Development of the St. Marys River Management Plan was based on a number of tasks that included review of existing information, public comment and input and scientific and planning analysis. Pandion Systems initiated this project in April 2000. The following is a description of the tasks that were conducted to develop this plan.

Task 1. Review River Plan Visioning Products, Including Outline, and Meet With Committee

The Pandion Team obtained and reviewed St. Marys River visioning products, plan outline, and other relevant documents provided by the Committee. Pandion also met with the Committee to better understand the intended goals and priorities for managing the St. Marys River. Based on this review and meeting, Pandion developed a set of *Guiding Principles* to direct the planning process (See Appendix A). This set of *Guiding Principles* helped clarify the basic assumptions about the value and use of the St. Marys River and provided a context within which to develop future management recommendations. The *Guiding Principles* document

- Provided direction for the overall "flavor" of the planning process (e.g., that the plan maintains local control over the St. Marys River [Guiding Principles])
- Restated the goals for the planning effort as established by the Committee (Goal Statements)
- Reasserted the reasons why the St. Marys River requires management planning action, such as to maintain water quality and to preserve the beauty and serenity of the river (Purpose Statements)
- Summarized the essence or importance of the St. Marys River resource, such as its comprising a major free-flowing drainage of Okefenokee Swamp and being a contributor to local economies (Significance Statements)
- Defined the "givens" of the planning environment, such as agency policies, agreements between agencies, or existing county, state, or federal regulations (Planning Parameters).

Although these principles, goals, and statements were informally understood, formalizing them into written statements provided a basis for incorporating them in the planning process.

Task 2. Meet with St. Johns River Water Management District (SJRWMD) Staff to Discuss Existing Documents and Research

The Pandion team met with SJRWMD Staff and obtained and reviewed existing documents and research regarding the St. Marys River. This information included SJRWMD and Georgia Department of Natural Resources (GDNR) studies and data as well as information from other agencies. Besides reviewing already collected documents and research, Pandion sought additional information from the SJRWMD, GDNR, regional and local planning agencies, and state and federal resource agencies throughout the process. A bibliography is provided at the end of the report.

Task 3. Develop Detailed Scope of Services and Timeline
Based on the results of Task 1 and Task 2 the Pandion team developed a detailed scope of services and timeline. This scope of services was reviewed and approved by the Committee.

Task 4. Participate in Three Community Workshops for Direction and Consensus
Prior to developing the draft plan, three community workshops were held (April 27, 2000; June 27 and 29, 2000) to obtain local government and public comment on threats, issues and strategies for the St. Marys River. The results of these workshops, including list of attendees and their comments are presented in Appendix B. Information from these workshops was incorporated into the plan.

Task 5. Prepare Draft Plan
Based on Task 1 through Task 4, the Pandion team reviewed and synthesized the water resource, land use, planning, and economic information on the St. Marys River and prepared this plan. Information about existing and projected conditions and recent accomplishments in each of these areas is included in the plan, along with recommended strategies for addressing issues and problems. Strategies are presented separately in each section of the plan, and are gathered in a summary chart (Table 1) in the Executive Summary of the plan. As the strategies reflect, many of the challenges that affect the St. Marys River now and in the future can be addressed through local management and through coordination of existing efforts across jurisdictional boundaries.

Task 6. Participate in Three Community Workshops to Present Draft Plan
Pandion participated in three follow-up community workshops in order to gather feedback on the draft plan and information for plan direction. The Nature Conservancy (TNC) was responsible for scheduling and facilitating the workshops. During this second series of workshops, Pandion presented the major elements of the draft plan, and public comment on these proposed plan elements was gathered through facilitation by TNC.

Task 7. Revise Plan Based on Input from Workshops, Participate in Committee Workshop
Pandion subsequently met with the St. Marys River Management Committee to discuss the comments from the three community workshops and to seek direction in incorporating these comments in the plan. Pandion then revised the draft plan.

Task 8. Deliver Final Plan
The Final Plan is based on the results, comments, and Committee direction obtained in Task 6 and Task 7. The plan was delivered to the Committee for final approval and assembled as a report to be reproduced and distributed by the Committee.

V. Findings: Resources and Economics

The St. Marys River Management Plan evaluates seven river resources: water quality, groundwater, floodplains, natural systems, recreational and public use, economic development, and government policy. Through the 1998 visioning processes, the Committee identified these river resource components as requiring evaluation and/or management consideration. This study did not evaluate the cultural and historical resources of the river.

A. Water Quality

A.1 Existing and Projected Conditions

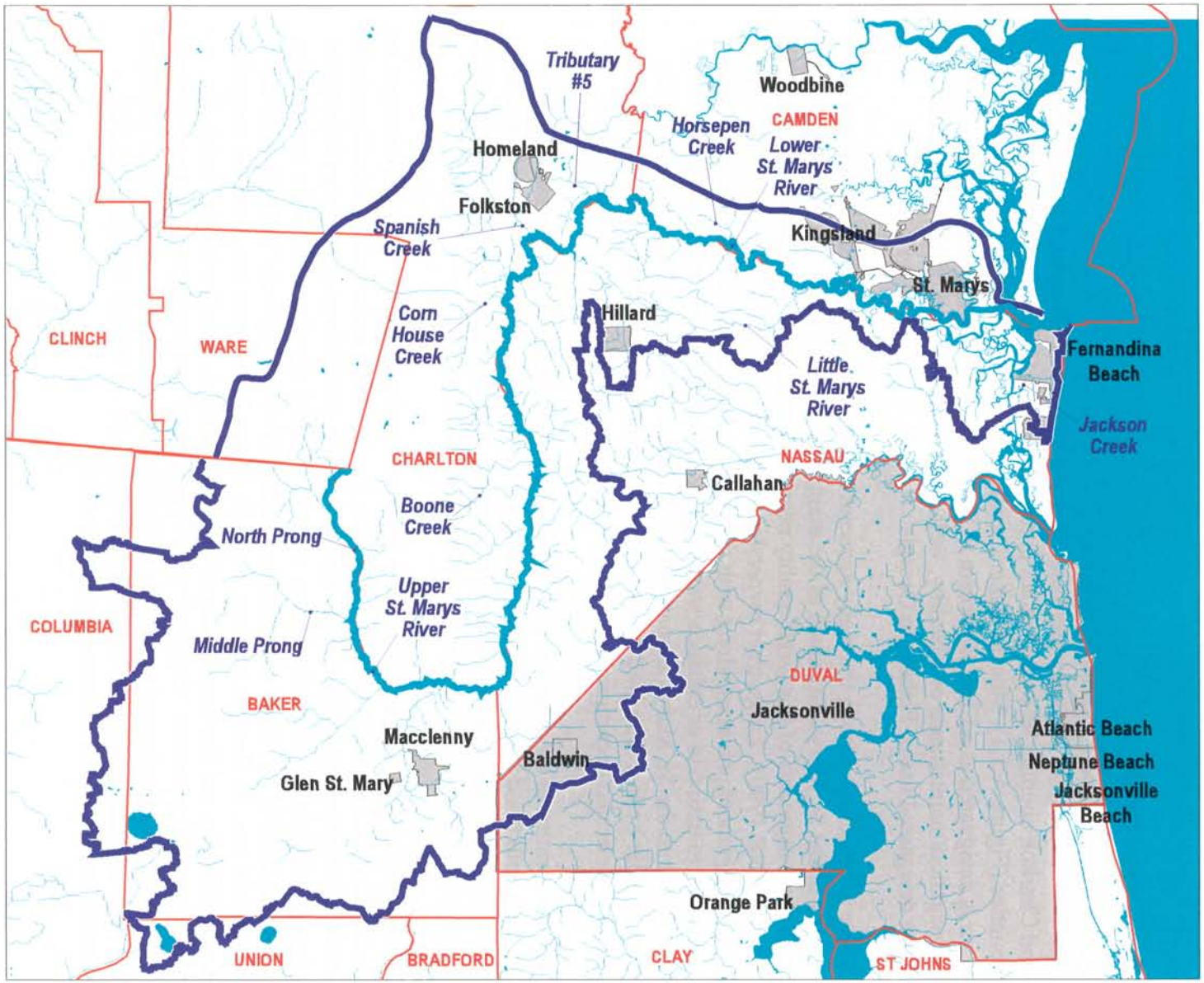
The St. Marys River surface water basin includes portions of Nassau, Camden, Baker, and Charlton counties as well as small portions of Ware, Columbia, Union, and Duval counties (Figure A.1.1). Most of Baker County is within the St. Marys River basin. The river is designated as a Class III stream in Florida (suitable for recreation and propagation/maintenance of a healthy, well-balanced population of fish and wildlife), and has a designated use of Fishing in Georgia.

There is consensus among the many agencies and entities that have studied the water quality of the St. Marys that much of the main stem of the river has good water quality, with some segments of fair water quality near developed areas (e.g. Hand and Lord 1996, Florida DNR 1990). Large-tract ownership with years of good stewardship and use of best management practices, along with the river's associated floodplain wetlands, have combined to maintain or enhance water quality. The headwaters and headwater streams that flow into the St. Marys are naturally characterized by high acidity and color, and occasionally by low dissolved oxygen. This is especially noted during summer months due to accelerated decomposition in adjacent swamps, particularly the Okefenokee.

The headwaters of the river are associated with numerous floodplain wetlands, which provide both flood storage and water quality improvement. This area, which lies mostly in Baker County, is undergoing some conversion from forested lands to developed areas, especially in the vicinity of Macclenny and Glen St. Mary.

The goal of maintaining and improving the water quality of the St. Marys River might be better described as maintaining the generally good existing water quality conditions in the river and improving localized water quality problem areas. From a regulatory standpoint, the evaluation of water quality relates to the designated use of a water body, and whether concentrations of the many constituents in naturally occurring water interfere with that designated use. In Georgia, streams in the St. Marys River basin are given the designated use of "Fishing and the propagation of fish, shellfish and game," while in Florida the streams must support the "Class III" uses of recreation and propagation and maintenance of a healthy, well-balanced population of fish and wildlife. These uses are to be preserved by programs administered by the Georgia Department of Natural Resources and the Florida Department of Environmental Protection.

Figure A.1.1. St. Marys River Surface Water Basin Boundaries, Rivers, and Streams



LEGEND:

- County Boundaries
- Surface Water Basin Boundaries
- Rivers and Streams
- Water Bodies
- Municipalities

DATA SOURCES:

1. Surface Water Basins (FL) - St. Johns River Water Management District (1:24,000)
2. Surface Water Basins (GA) - U.S. Geological Survey (USC Hydrologic Units (1:250,000)
3. County Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
4. County Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
5. Municipal Boundaries (FL): US Census Bureau TIGER Li Files (1:100,000)
6. Municipal Boundaries (GA): US Census Bureau TIGER L Files (1:100,000)
7. Rivers and Streams: USGS Digital Line Graphs (1:100,0(
8. Water Bodies: USGS Digital Line Graphs (1:100,000)

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GIS Associates, Inc., with Pandion Systems, In
For the St. Marys River Management Committe
August 22, 2000

Both Florida and Georgia water quality monitoring agencies have characterized most of the river's main stem as having "good" water quality with "fair" water quality in the headwaters and some tributaries (Hand et al. 1996, GDNR 1996). "Good" water quality indicates that the river meets its designated use of supporting fisheries and wildlife populations, while "fair" indicates that at times this designated use is not attained. In the headwater portions of the St. Marys River, the "fair" water quality is due to naturally occurring low oxygen concentrations and high acidity. Elevated nutrient concentrations and coliform bacteria are responsible for "fair" water quality above Macclenny, in the Little St. Marys River, and in estuarine portions of the river. Point discharges and stormwater runoff are thought to be influencing water quality in the Cedar Creek and South Prong tributaries of the St. Marys near Macclenny (SJRWMD 1996).

EPA files list 12-point source discharges in the St. Marys River basin regulated under the National Pollutant Discharge Elimination System (NPDES) (Table A.1.1). Some of these point sources have the potential to affect water quality in the tributaries of the river, although water quality in the main stem of the river seems somewhat resilient to tributary inflows. This stable water quality of the main stem of the river can be partially attributed to the fact that the river originates in the Okefenokee and Pinhook Swamps (SJRWMD 1996). In addition, the river's tributaries frequently have intact floodplain wetlands associated with them – these natural wetlands provide pollution and sediment removal functions.

Table A.1.1 NPDES wastewater dischargers in St. Marys River basin.

Facility Name	**Receiving Water**	**Discharge Type**	**Location**
Eastwood Oaks Apartments	Polishing pond	Domestic	Hilliard, FL
Fernandina Beach Municipal Treatment Plant	Amelia River	Municipal	Fernandina Beach, FL
Folkston Pond	Tributary to Spanish Creek	Municipal	Folkston, GA
Corporacion Durango	St. Marys River	Industrial	St. Marys, GA
Hilliard	Unnamed stream	Municipal	Hilliard, FL
ITT Rayonier	Amelia River	Industrial	Fernandina Beach
Smurfit-Stone	Amelia River	Industrial	Fernandina Beach
Kingsland Pond	Little Catfish Creek	Municipal	Kingsland, GA
Macclenny WWTP	Turkey Creek	Municipal	Macclenny, FL
Marsh Cove Apartments	Amelia River	Domestic	Amelia River
Northeast Florida State Hospital	Turkey Creek	Domestic	Macclenny, FL
St. Marys WWTP	St. Marys River	Municipal	St. Marys, GA

Source: Permit Compliance System, EPA, 2000.

Under the Total Maximum Daily Load program (Section 303(d) of the federal Clean Water Act), states must submit a listing of streams that do not support their intended uses to the EPA, and must take steps to improve water quality in these streams. The listing of "impaired waters" developed by both state agencies for the St. Marys basin (Table A.1.2) can be used to consider challenges to water quality that might require regulatory action in the future. It should be noted that the TMDL program is under considerable review by EPA, which may propose changes in the program. The 303(d) lists that were available during preparation of this plan may change over time due to additional information or regulatory priorities. Despite this, the lists developed by the states are a useful reference for identifying stream segments of possible concern.

The combined 303(d) lists for Florida and Georgia show that the most common reason that streams do not support their designated uses is low dissolved oxygen (7 of the 11 non-supporting streams). As noted previously, low dissolved oxygen in these streams often appears to be due to natural causes, especially in headwater segments of the river.

Several of the St. Marys' headwater streams and the lower portion of the main stem are considered "impaired waters" under EPA's Section 303(d) program because of fish consumption advisories due to elevated mercury levels in fish tissue (USEPA 2000), detected during regular monitoring by state agencies (Table A.1.2). In the upper portions of the basin, guidelines suggest limiting fish consumption to one meal per month of large mouth bass and one meal per week of redbreast sunfish. In the lower portions of the River, guidelines suggest limiting consumption to one meal per week of bass and there is no suggested limit on sunfish.

The concern over mercury in fish tissue is not restricted to the St. Marys River, but occurs in many water bodies in the Southeast and throughout the United States (USEPA, 2000a). The origin of the mercury is believed to be atmospheric deposition from industrial sources, especially coal-fired power plants (USEPA, 2001). Atmospheric mercury is converted to methylmercury through a number of biological processes in soil and water. These biological processes are thought to be especially significant in water and in the large expanses of swamp that form the headwaters of the St. Marys River (e.g., GDNR 1996, FDHRS 1993). Methylmercury is highly toxic, and accumulates in organisms as it moves up the food chain. In December of 2000, EPA announced that it would take steps to regulate nationwide mercury emissions in coal- and oil-fired electric power plants due to long-term human health concerns.

Some stream segments noted in agency reports as having only fair water quality are not included in the 303(d) lists. Deep Creek, which flows into the St. Marys east of the South Prong, shows elevated nutrient concentrations that may be due to the influences of septic systems, urban runoff, and agriculture in the vicinity of Baldwin. Within this area of the St. Marys River watershed, a dump at Yellow Water Road south of Baldwin was listed as a Superfund site after "discovery" in 1984, but was removed from EPA's National Priority list in 1999 after remediation.

The middle portion of the St. Marys River, which is the portion that extends from Macclenny where the river runs from south to north until it reaches Folkston/Boulogne, generally has excellent water quality, with favorable dissolved oxygen saturation and low suspended solids. However, several tributary streams in this portion of the river are included in the 303(d) lists. NPDES dischargers in this section of the river include the municipal treatment plant for the city of Folkston, which discharges to a tributary of Spanish Creek.

The influence of the tide on water levels and flow rate is noticeable as far inland as a few miles upstream of Trader's Hill, although water chemistry here is clearly freshwater rather than brackish. Because this portion of the river has been historically accessible to relatively large watercraft, river water in this area was used to supply drinking water for outgoing ships in earlier times; its high acidity naturally prevented contamination.

In the lower portion of the St. Marys River, water quality is more complex because of increasing tidal and saltwater influences, which affect water clarity and dissolved oxygen. In addition this part of the river is influenced by point source wastewater discharges in and around St. Marys, Kingsland, and Fernandina Beach. The estuarine portions of the river do not fully support their designated uses (Class III and Fishing) due to fish consumption guidelines and other parameters (Table A.1.2).

A.2 Accomplishments

Recent observations and water quality investigations show that the main stem of the St. Marys River continues to have excellent water quality throughout much of its length. However, there are signs that water quality is being affected by human activities. Near Macclenny, Cedar Creek and the South Prong, there is evidence of elevated phosphorus and inorganic nitrogen, possible signs of the increasing influence of septic systems (Hand et al. 1996). High bacteria and low dissolved oxygen were noted in the South Prong, attributed to overflows from wastewater treatment plants for the City of Macclenny and the North East Florida State Hospital adjacent to Turkey Creek. Since the South Prong is a major tributary of the St. Marys, declining water quality here is not a positive sign for future water quality in the main stem of the river.

Current water sampling activities

Water quality sampling is predominantly done by the SJRWMD in Florida and by the GDNR's Environmental Protection Division (EPD). Both agencies use the EPA's STORET water quality data "bank" that can be accessed by registered users (USEPA 2001). The Florida Department of Environmental Protection (FDEP) also does stream biology sampling at several Florida stations. Figure A.1.2. shows existing water quality sampling stations on the river and its tributaries.

Table A.1.2. Listing of Impaired Streams (303(d)) Listed Streams and Segments) in the St. Marys River (SMR) Basin

Stream	**Location (See Fig.A.1.1)**	**Criterion violated**	**Evaluated cause(s)**	**Comment**
N. Prong St. Marys River	FL/GA: Headwaters to Macclenny	FCG, DO, nutrients	Background and nonpoint sources	Low DO is common in blackwater streams
Middle Prong St. Marys River	FL/GA: merges with N. Prong to form St. Marys River north of Macclenny	FCG, FC	Cause not evaluated	Reference site, generally good water quality, does not appear on GA 303(d) list.
Upper St. Marys River	FL/GA: Segment between Middle Prong and Macclenny	FCG, nutrients, BOD	303(d) list refers to silviculture/agriculture in area	Does not appear on Georgia 303(d) list
Boone Creek	GA: flows into SMR near St. George	DO	Nonpoint sources	Low DO is common in blackwater streams
Corn House Creek	GA: flows into SMR south of Traders Hill	DO	Nonpoint sources	Low DO is common in blackwater streams
Spanish Creek	GA: Segment between Long Branch and St. Marys River	FC	Urban runoff	Stream also receives point source discharge from municipal treatment plant (Folkston)
Cooner Branch (Tributary #5)	GA: flows into SMR east of Folkston	DO	Urban runoff	
Lower St. Marys River	GA: Spanish Creek to St. Marys Cut FL: Little St. Marys to mouth of SMR	DO, nutrients, FCG, total suspended solids, FC	Nonpoint and point sources	Area influenced by water quality of estuary as well as freshwater.
Horsepen Creek	GA: flows into SMR east of Kings Ferry	DO, FC	Nonpoint sources	Downstream from area served by septic systems
Little St. Marys River	FL: flows into SMR NW of Gross	FCG, FC, DO, nutrients	Cause not evaluated	---
Jackson Creek	On Amelia Island	Nutrients	---	---

FCG: Fish consumption guideline due to mercury found in fish tissue. See text.
DO: Dissolved oxygen (standard is 5 mg/l)
FC: Fecal coliform
BOD: Biological oxygen demand
Sources: Draft 303(d) lists (GDNR 1996, FDEP 1998).

Georgia currently samples water at the Highway 301 crossing in Boulogne on a monthly basis. It is uncertain how long funding for sampling at this one station will continue (Methier 2001). GEPD sampled 10 stations in the basin throughout 1998 as part of its River Basin Planning Initiative. The sampling process is repeated in five-year intervals. Between sampling years, emphasis is placed on long-term trend monitoring at the station located at US 301 in Boulogne. In Florida, the SJRWMD collects six samples each year at each of three stations on the river. The SJRWMD's Watershed Action Volunteers collect additional samples along the river (SJRWMD 2001).

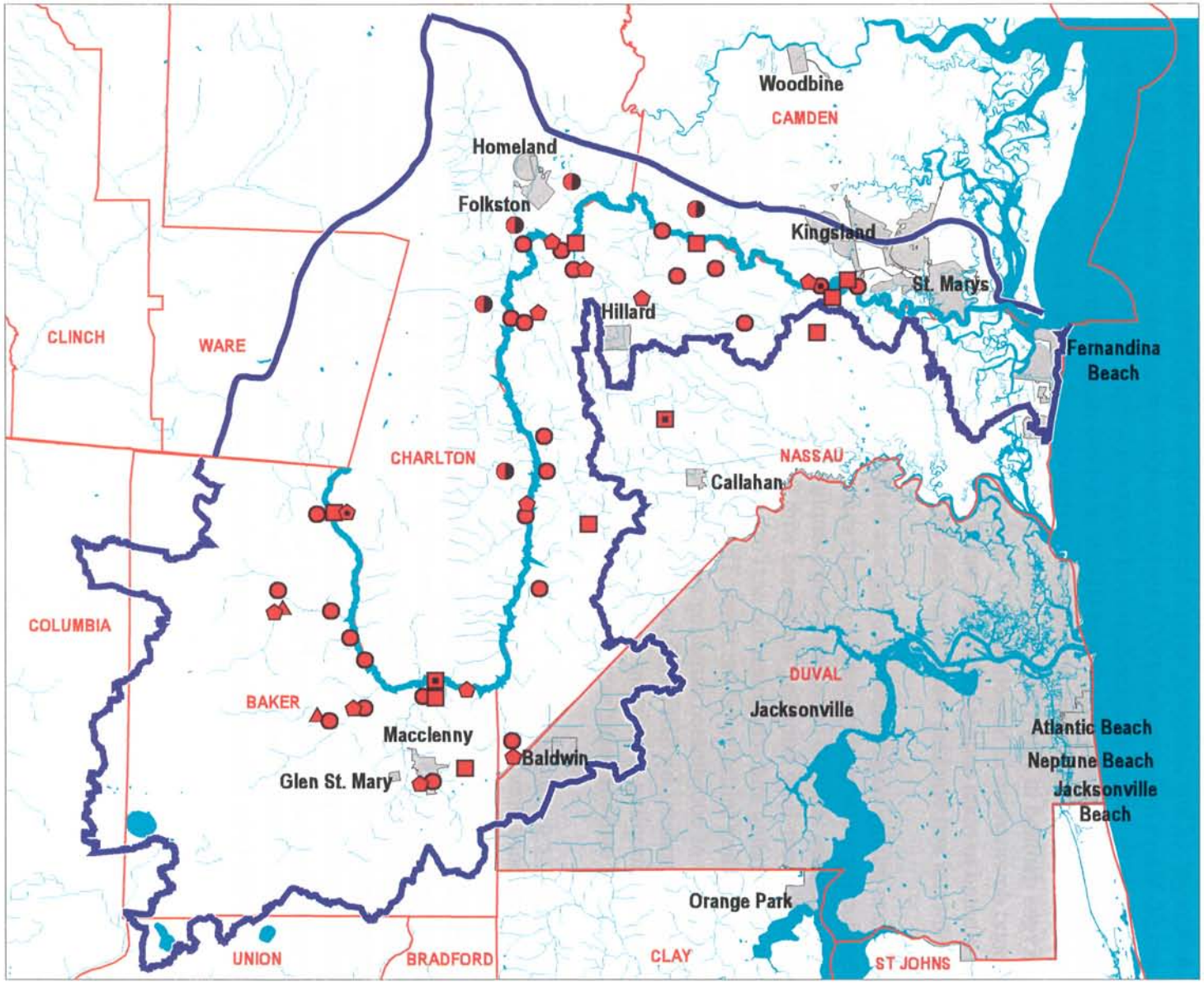
A "trough" of low dissolved oxygen levels (below 4 mg/l) was noticed between Folkston and St. Marys in September 1997 based on sampling at numerous stations (GDNR 1996). The Class III waters limit for dissolved oxygen is 5 mg/l. The trough also was noted by the Coastal Resources Division of GDNR in a 1994 sturgeon study. The Folkston wastewater treatment plant reported a spill that violated its limit for average biological oxygen demand in July 1997. However, low dissolved oxygen concentrations that were found downstream in September 1997 during two sampling visits by GDNR are not attributed to point source influences, but are thought to be due to the interaction of freshwater and brackish water from tidal inflows.

A water quality coordination meeting was held in October 1997 so that agencies conducting water quality sampling could share their monitoring activities for the river. The agencies failed to coordinate their sampling at the most optimal time, which was GDNR's year-long sampling associated with their management plan cycle. Based on limited funding and schedules, the next opportunity would reoccur in 2003 upon GDNR's next sampling initiative on the river. There has been no further discussion of the possibility of coordinated sampling since 1997. A 1995 inventory of Florida water quality sampling stations by SJRWMD suggested that no new stations were needed but more frequent sampling of existing stations was suggested. In 1998 the FDEP cut back the number of stations being sampled for determining long-term trends.

Point source discharges

As mentioned previously, there are a number of point source dischargers in the St. Marys basin. In the past five years some of the National Pollution Discharge Elimination System (NPDES) permits for these discharges have been renewed, but no new water discharges have been proposed or permitted. The city of Macclenny's wastewater treatment plant was upgraded in 1998 to include advanced, secondary treatment. The St. Marys municipal wastewater treatment plant's NPDES permit was renewed in 1999 to allow 0.5 million gallons per day of treated discharge to the river (EPA 2000). The municipal wastewater treatment plant at Folkston has two permitted discharge points into a tributary of Spanish Creek. The NPDES permit for one of these discharge points was renewed in March 2001; the other discharge point is due for permit renewal in 2002.

Figure A.1.2. Surface Water Quality Sampling Sites In the St. Marys River Basin



LEGEND:

- County Boundaries
- Surface Water Basin Boundaries
- Rivers and Streams
- Water Bodies
- Municipalities

Surface Water Quality Sampling Sites by Agency:

- Georgia Department of Natural Resources
- Florida Department of Environmental Protection
- St Johns River Water Management District
- St Johns River Water Management District & Georgia Department of Natural Resources
- U.S. Environmental Protection Agency
- U.S. Environmental Protection Agency & Georgia Department of Natural Resources
- U.S. Geological Survey
- U.S. Geological Survey & Georgia Department of Natural Resources

DATA SOURCES:

1. Surface Water Basins (FL) - St. Johns River Water Management District (1:24,000)
2. Surface Water Basins (GA) - U.S. Geological Survey (USGS) Hydrologic Units (1:250,000)
3. County Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
4. County Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
5. Municipal Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
6. Municipal Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
7. Rivers and Streams: USGS Digital Line Graphs (1:100,000)
8. Water Bodies: USGS Digital Line Graphs (1:100,000)
9. Sampling Sites (FL): Coordinates received from individual agencies by Fay Baird of Pandion Team (some overlapping points were shifted slightly for mapping purposes)
10. Sampling Sites (GA): Approximate coordinates taken by Fay Baird of Pandion Team from 1:24,000 USGS Quad Sheets

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N W E S

10 0 10 20 Miles

PREPARED BY:

GIS Associates, Inc., with Pandion Systems, Inc.
For the St. Marys River Management Committee
August 22, 2000

The existing regulations regarding both point and nonpoint source discharges are carried out by the NPDES program, which is administered by EPA through delegation to the states. Regulations for nonpoint source discharges, such as industrial and municipal stormwater, have become increasingly strict in the past 10 years.

Point source discharge permits are issued depending on compliance with a Total Maximum Daily Load (TMDL) for each stream segment or water body. The TMDL is an analysis that determines what new waste loads are permissible without degrading a water body below a certain point. TMDLs are established for specific pollutants of concern, such as bacteria, metals, and biological oxygen demand. The TMDL is determined by states, or by the EPA if the states fail to establish the TMDLs within a certain time.

NPDES permits to date have been issued by the states and EPA despite the lack of TMDLs for the St. Marys River basin. In 1994, the Sierra Club sued the EPA and a number of states, including both Georgia and Florida, for failure to establish TMDLs as required by the Clean Water Act. The suits for both states have since been settled.

In Georgia, the courts ordered the EPA and the Georgia EPD to develop TMDLs for the St. Marys River during the year 2000. In Georgia, TMDLs are being set as part of the River Basin Planning Initiative. Draft TMDLs for dissolved oxygen were published by the Georgia EPD in June 2000 for the St. Marys River east of Folkston in Charlton County, a portion of Spanish Creek, Horsepen Creek, Boone Creek, Cornhouse Creek, Cooner Branch (Tributary #5), and the North Prong of the St. Marys River. A TMDL for fecal coliform bacteria was set for Horsepen Creek. Draft TMDLs for mercury were published in August 2000 for a number of segments.

The state of Florida is establishing TMDLs as part of River Basin Management Planning by FDEP and is scheduled to establish these TMDLs by the year 2010.

Local activities to remove trash and focus attention on the river

Locally initiated actions by the St. Marys River Management Committee to improve water quality include the St. Marys Celebration, a large-scale river cleanup day. The cleanup has grown every year, from a group of 186 volunteers who collected 24,000 pounds of trash from 10 sites in 1996 to a force of 720 people removing 42,000 pounds of trash and debris from 17 river access points in 2001. These cleanups have been completely accomplished without outside funding, on the basis of local donations and sponsors. In addition, the St. Marys River Management Committee has undertaken the reconditioning of the Scotts Landing boat ramp to improve public river access. Continuation of these activities is addressed under the Recreation and Public Use section of the report.

New fish consumption guidelines for some segments of the river

For several river segments and tributaries in both states, the river is considered unable to support its designated use of fishing because of high concentrations of mercury that have been found in fish tissue. The consumption guideline is one largemouth bass per month per person. The source of the mercury is thought to be atmospheric deposition of mercury

from sources outside the river basin into the large wetlands that form the headwaters of the St. Marys River. The concern over mercury in fish tissue is not restricted to the St. Marys River, but occurs in many water bodies in the Southeast and throughout the United States (USEPA, 2000a).

A.3 Strategies

Promote public agency coordination for surface water quality monitoring and request reports on water quality for non-technical audiences

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Improves water quality understanding and sampling efficiency	X	X	Sampling already being done by FDEP, GEPD, USGS, SJRWMD, EPA	Ongoing	Ongoing sampling gets regular encouragement, review, and follow up by local association.	Long Term

Five government agencies currently perform sampling on the river and its tributaries: US Geologic Survey (USGS), EPA, GEPD, FDEP, and SJRWMD. There is an opportunity to improve the efficiency and coordination of sampling efforts by the agencies currently performing water quality and other sampling in the river and its tributaries. A follow up to the 1997 coordination effort is recommended to compare parameters sampled, duplication of effort at sampling stations in the main portion of the river, the choice of sites for long-term trend analysis, and sharing of information regarding tributary sampling. EPA's STORET database provides an excellent vehicle for sharing data between agencies.

Local entities concerned with the health of the river should encourage this coordination and regularly review the results of water quality monitoring being done by government agencies. In particular, the impacts of nonpoint source pollution are thought to be increasing and may result in changes in nutrient and bacteria concentrations in the river and/or tributaries (e. g. SJRWMD 1996). Despite the monitoring that is provided by the various agencies sampling the river, there is no single entity that regularly reviews the results from both states and makes them locally available. State agency and EPA mercury studies and fish tissue sampling now underway is also of interest to river users, particularly fishing enthusiasts.

Over the short term, a local water quality conference that presents water-sampling results and provides a forum for education about human impacts on water quality of the St. Marys is suggested. Conference participants would be local planning officials, local government staff, landowners, businesses, and citizens. Over the long term, conference attendees and SMRMC members could be continuously updated as new water quality data information becomes available through STORET or other sources. This recommendation is included under the public education strategies in the Recreation and Public Use section of the report.

Monitor Total Maximum Daily Load (TMDL) programs in both states

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★11	Monitors establishment of TMDLs for surface waters	✕	✕	Federal requirement	Mandatory under federal Clean Water Act; Local participation is voluntary; Meetings are taking place now (2000+)	Local representatives participate in regional meetings (FDEP, GEPD) where TMDLs are set; Monitoring of process done by SMRMC.	Short Term

TMDLs are currently being established in Georgia and Florida. The TMDL process that is now underway in both states should be monitored by the Committee. It is possible that these basin-planning initiatives of Florida and Georgia will afford more protection for the river in the future. The Committee has an opportunity to participate in public meetings involving the establishment of TMDLs. After TMDLs are set, they must be taken into account whenever a new point source of pollution is permitted or an old point source is renewed. There is a public input component to the permitting of point source discharges. SMRMC could ensure that the public is informed and represented during hearings or comment periods.

Investigate "Special Waters" designations in Florida and Georgia

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Maintains existing water quality and prevents degradation by regulating existing and new pollution sources	✕		Local action to nominate river for state designation	Voluntary nomination of river; Mandatory water quality standards if designated	Committee evaluates state programs for GA or FL designation (e.g., OFW)	Long Term

The existing water quality classifications that apply to the St. Marys River are similar (Florida: Class III, and Georgia: Fishing, Propagation of Fish, Shellfish and Game). This reflects the fact that the designations are based on the federal Clean Water Act. These water quality standards are designed to keep water quality at or above the levels needed to support swimming and other recreation, fishing, and the propagation of healthy, balanced populations of fish, shellfish, and other aquatic life. However, water discharges can be permitted that reduce water quality in receiving water, as long as the degradation is not so severe that the applicable use standards are violated. This can set the stage for a gradual reduction in water quality that is allowed under the current regulatory framework for both Florida and Georgia. This is especially a concern for the St. Marys River because numerous existing point sources may eventually affect ambient water quality.

Both Florida and Georgia have programs that give a higher level of protection to ambient water quality, by designating certain rivers as "outstanding waters." This designation

requires a higher level of water quality protection to be demonstrated by point source dischargers during the permit renewal process, and by new discharges of stormwater under Florida's stormwater permit process.

In Florida, the Environmental Regulatory Commission (advisory board to the FDEP) designates Outstanding Florida Waters (OFWs) based on a showing of exceptional recreational or ecological significance. The designation process is initiated by a request from the public to FDEP, and generally takes about one year to complete. Proposed activities that might affect an OFW must be shown to be clearly in the public interest and not to lower ambient water quality. At present, Outstanding Florida Waters automatically include those streams that are within federal or state parks and aquatic preserves, and therefore include tributaries within the Okefenokee National Wildlife Refuge, portions of the Middle Prong because they are within the Osceola National Forest, and areas around Fort Clinch State Park at Fernandina Beach.

In Georgia, a similar designation of Outstanding Georgia Resource Waters (OGRWs) can be made through GDNR. The water classification that is assigned to OGRW is "Wild River," and through this classification no further alteration of natural water quality is allowed.

It is uncertain whether the TMDL process that is now underway in both states will afford the necessary protection for the river in the future. As the TMDL process is completed, "Special Waters" designations may be identified as the best way to protect existing (ambient) water quality from further degradation. The designation of outstanding waters in both states would presumably require new TMDLs to be set but would give a higher degree of protection to ambient water quality than is provided by existing water quality regulatory programs.

B. Groundwater

B.1 Existing and Projected Conditions

Groundwater includes both shallow and deep aquifers in the St. Marys River basin. Shallow ("surficial") groundwater combines with rainfall and runoff to provide the source of flow to the St. Marys River. However, large-scale human water users generally favor deeper and more reliable groundwater sources. The primary water source for large-scale industrial users in the basin is the Floridan Aquifer. In the St. Marys River basin, the top of the upper Floridan Aquifer is approximately 400 feet below the land surface (Fernald and Purdum 1998).

Local surficial aquifers are widely tapped by smaller residential and commercial water users. EPA open files list over 75 commercial shallow aquifer users in the basin, and there are many others, since individual homeowners with onsite wells are not required to submit drinking water quality reports to EPA. For example, in Baker County, 79% of the population uses private wells for drinking water supply. Many of these wells are in the surficial aquifer, which is easily contaminated. Despite these withdrawals, human use of shallow groundwater is not considered to be affecting the St. Marys River at present.

Low-to-moderate amounts of water falling as rain percolates to the Floridan Aquifer in the St. Marys River basin. There are no areas of high recharge to the Floridan Aquifer in the St. Marys River basin (i.e. areas in which more than 8 inches of rainfall per year percolates into the aquifer), although there are some local areas of sand on the Trail Ridge that may provide recharge to shallow aquifers (Huff and McKenzie-Arenburg, 1990). The uplands of the headwaters and middle sections of the St. Marys basin provide moderate recharge (4-8 inches per year) to the Floridan Aquifer (SJRWMD 1996). These areas of moderate recharge are estimated to comprise more than 50% of the land area of Baker County. Recharge in floodplain wetlands adjacent to the main stem of the St. Marys River is low (0-4 inches per year). Much of the lower portion of the basin in salt marshes is considered an area of shallow aquifer discharge. For comparison to recharge rates, average rainfall in Jacksonville based on a 104-year record is 50.5 inches (Fernald and Purdum 1998).

B.2 Accomplishments

Recent and projected population growth in the St. Marys River basin has raised new concerns over groundwater quality and quantity. As mentioned previously, the St. Marys River's flow is partially made up of shallow groundwater discharge, especially during low-flow months, but it is not a spring-fed river like its near neighbor the Suwannee. Despite this, it is possible that changes in shallow groundwater are affecting the river, primarily through septic system construction and possibly through increasing use of the shallow aquifer for drinking water and agricultural uses.

Declining shallow groundwater quality effects on river

Poorly designed or failing septic systems near the river may be affecting the river in some locations, for example in the Middle and South Prongs, Spanish Creek and Horsepen Creek (see Table A.1.2). There is increasing evidence that septic tanks are a potentially large source of nonpoint source pollution in the basin, affecting both shallow aquifers and surface water quality (SJRWMD 1996). Eighty-seven percent of Baker County's population in 1995 was served by on-site septic systems, and septic system failure rates were reported to exceed state averages (SJRWMD 1996). Septic tank failure directly affects bacterial concentrations in shallow wells and adjacent streams, and presents a hazard for swimming uses downstream.

Increased water recycling for large-scale industrial water uses

Existing large-scale industrial water users are predominantly concentrated on the coast around Fernandina Beach. The usage has resulted in a drawdown of the Floridan Aquifer at Fernandina Beach. This drawdown creates the potential for saltwater intrusion, although it has not occurred to date. Increased water usage efficiency and in-plant recycling of water has resulted in a recent decline in water use at these facilities, and projected water use is expected to continue declining. The SJRWMD predicts that the Floridan Aquifer will be at a higher level in the year 2020 than it is at present due to increased water use efficiency and water recycling at these facilities (SJRWMD, 1998).

There are no large groundwater withdrawals in the western portion of the basin. In the mid-1990's, the Dupont Corporation proposed to open a heavy minerals mine on the Trail

Ridge adjacent to the Okefenokee Swamp. In 1997 Dupont abandoned these plans, in part due to concerns over groundwater impacts from mining and water use.

Population increase in coastal communities

The sharp increase in population in coastal counties has been identified by the Georgia Board of Natural Resources (directors of the GDNR) as a potential stressor of water supplies from the upper Floridan Aquifer, as the increase in water withdrawals is accompanied by the threat of saltwater intrusion (Georgia Board of Natural Resources 2001). A 1998 water supply assessment by the SJRWMD similarly predicted an increase in shallow groundwater use in Baker and Nassau Counties by the year 2020 due to domestic and agricultural use increases (Table A.1.3).

Use of water for golf course irrigation is a large category of water use and is predicted to increase substantially for Nassau County in particular, although it should be noted that only a small portion of this county lies in the St. Marys River basin. Golf course acreage in all of Nassau County is predicted to increase by 60%, from 8,095 acres in 1995 to 12,952 acres in 2020. The consumptive water use permit process administered by SJRWMD requires the use of stormwater and reclaimed water for golf course irrigation wherever feasible. The Georgia EPD can require similar "control measures" (which might include irrigation with stormwater or reclaimed water) in areas threatened by saltwater intrusion; however, it is not mandatory as in the Florida permit program.

Table A.1.3 Current and projected groundwater use in Baker and Nassau Counties in million gallons per day. Projections for 2020 are based on a year with average rainfall.

Use Type	Source	Baker		Nassau		Total	
		1995	2020	1995	2020	1995	2020
Domestic/small public suppliers	Predominantly shallow aquifer	1.51	1.89	2.63	2.17	4.14	4.06
Agriculture (1)	Predominantly shallow aquifer	1.28	1.27	0.25	0.28	1.53	1.55
Public supply	Floridan Aquifer	0.65	1.49	4.34	10.38	4.99	11.87
Golf course irrigation	Shallow and Floridan Aquifers	0.14	0.21	15.15	24.24	15.29	24.45
Industrial, institutional, and commercial	Floridan Aquifer	0.19	0.27	34.49	30.58	34.68	30.85
Total		**3.77**	**5.13**	**56.86**	**67.65**	**60.63**	**72.78**

(1) Agricultural production of non-citrus fruit/nuts, greenhouses and nurseries, field crops, row crops, and turfgrass. Source: SJRWMD 1998a.

B.3 Strategies

Establish consistent septic system setbacks on both Florida and Georgia sides of the river

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★1	Provides consistency of septic setbacks and reduces uneven development pressures	✕		Local action through comprehensive planning process	Adoption is voluntary; mandatory if adopted	Monitored by Committee through comprehensive planning revisions and local plan board site plan approval	Long Term

Contamination of shallow aquifers and streams by failing or improperly installed septic systems is a clear concern for the long-term health of shallow groundwater, the river, and its tributaries.

To guide new development, the Georgia Mountains and Rivers Corridor Protection Act has established a 100-foot corridor to be maintained as a "naturally vegetated buffer" along the St. Marys River. Within this corridor, individual residential lots must be at least two acres in size, and septic tanks and drainfields are not allowed. This limits the density of residential development adjacent to the river, with a corresponding reduction in nonpoint sources of surface runoff pollution (e.g., lawn fertilizers, household pesticides). The corridor also reduces the likelihood of septic pollution that might affect the river. This act states that this setback should be adopted as part of the local comprehensive planning process. It is up to the local governments to develop zoning ordinances to reflect this setback requirement. Since local zoning is underdeveloped, this setback requirement is not likely to be enforced unless monitored by an outside organization.

The local governments on the Florida side of the river should establish a similar "river corridor planning area" with septic setback and density requirements identical to those in Georgia. This would afford a higher level of protection to the river than is currently provided in Florida, where there are less stringent density requirements for new development and the location of septic tanks and drainfields. Consistent setback requirements on both sides of the river would also reduce uneven development pressures.

Encourage proper maintenance of existing septic systems within the river corridor

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★4	Reduces existing threat to groundwater and river water quality from existing systems which are not properly maintained	✕		Committee, state agencies, local governments	Required by existing state law and local health departments	Public education campaign and periodic review by local health departments and Committee	Long Term

Requirements for new development do not address the problems that are occurring because of old and failing systems. These situations should be locally addressed through county Boards of Health and increased public education, which should emphasize the relationship between septic failure and the quality of shallow groundwater used for residential drinking water supplies. Education efforts may also address the relationship between enjoying the St. Marys River and protecting shallow groundwater that flows into the river.

C. Floodplains

C.1 Existing and Projected Conditions

Flood damage in the St. Marys basin occurs from two very different sources: tidal surges associated with hurricanes, and runoff from heavy rainfall (USACE 1998). The river and its tributaries throughout most of the upper part of the basin are associated with wide forested floodplains of poorly drained soils. In the middle portion of the basin, the main stem of the river has a wide floodplain, with oxbow lakes and a somewhat meandering channel. In the lower, tidal portion of the basin, floodplains cover approximately 50% of the land area, and the low topography and poorly drained soils have limited development. Future development will be further limited because of recent stricter construction standards in areas subject to coastal storm surges. In the lower part of the basin, higher banks that have soils better suited to septic systems are predominantly developed. Figure C.1.1 provides a Floodplain Map of the St. Marys River.

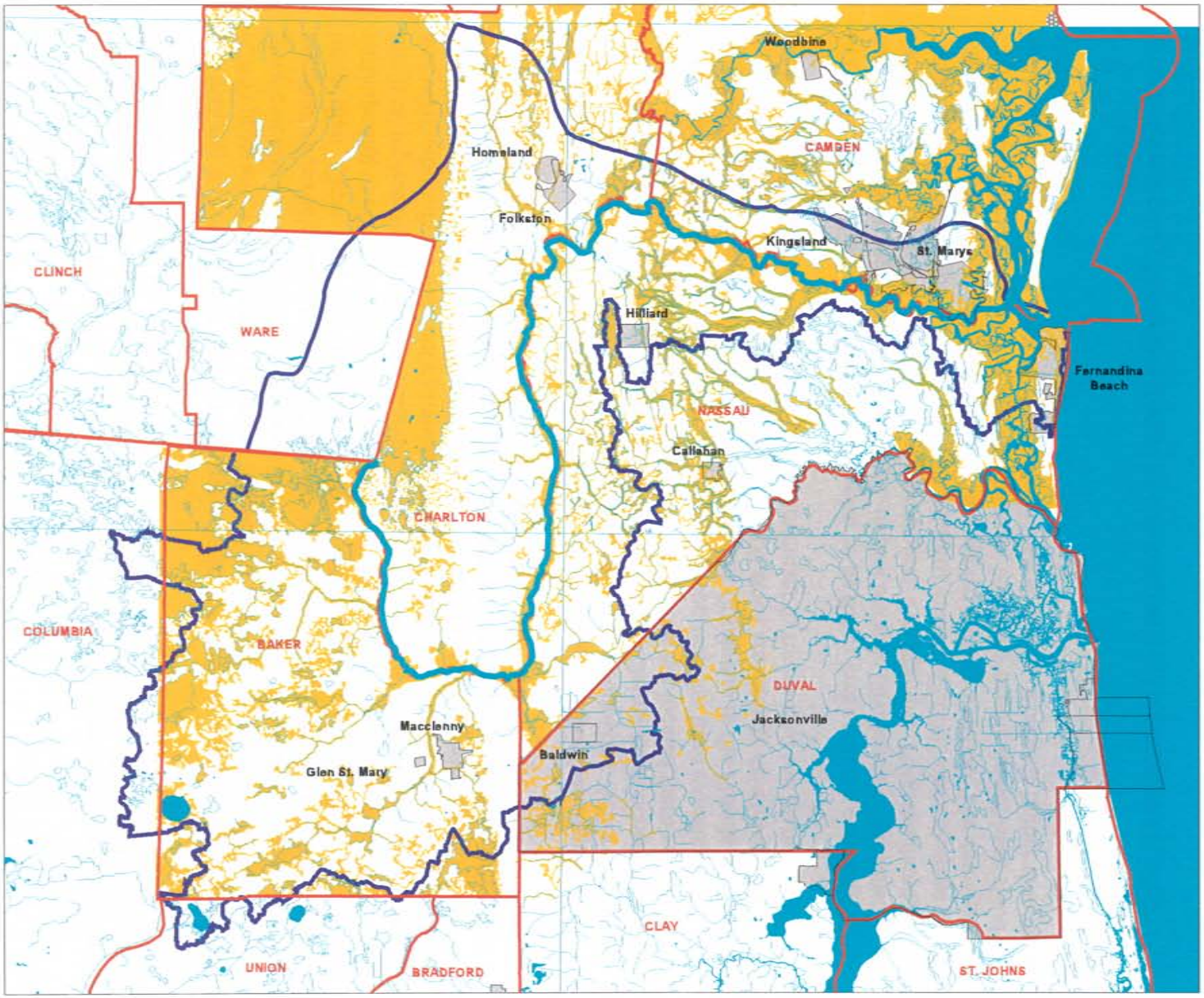
In Florida, filling of floodplains is limited by local planning ordinances and by stormwater regulations under SJRWMD. Water management district regulations for Management and Storage of Surface Waters (MSSW) require that there be no net loss of storage in the 10-year floodplain. Construction in the 100-year floodplain requires elevation of structures above the elevation of the 100-year flood, which has usually been accomplished through the use of clean fill. SJRWMD has published a model floodplain ordinance that requires all construction in the 100-year floodplain to be on pilings rather than on fill, substantially reducing the fill that would be allowed in the 100-year floodplain.

All of the Georgia river communities participate in the National Flood Insurance Program and have local ordinances that address construction in floodplain areas and maps that identify these areas. There is no state program that addresses floodplain encroachment, although some protection is afforded by the 100-foot setback required under the River Corridor Protection Act.

C.2 Accomplishments

Flood protection is primarily accomplished through participation in the National Flood Insurance Program (NFIP) that is administered by the Federal Emergency Management Agency (FEMA). All local governments in the St. Marys River basin are participants in the NFIP, which means that local governments have adopted basic regulations that regulate development in flood prone areas. Flood insurance rate maps are available for these counties and municipalities; these maps identify areas that are at risk of flood damage. For the Georgia communities, the rate maps were published since 1995 and are

Figure C.1.1. 100-Year Floodplain in the St. Marys River Basin



LEGEND:

- County Boundaries
- Surface Water Basin Boundaries
- Rivers and Streams
- Water Bodies
- Municipalities
- 100-Year Floodplain

DATA SOURCES:

1. Surface Water Basins (FL) - St. Johns River Water Management District (1:24,000)
2. Surface Water Basins (GA) - U.S. Geological Survey (USGS) Hydrologic Units (1:250,000)
3. County Boundaries (FL): U.S. Census Bureau TIGER Line Files (1:100,000)
4. County Boundaries (GA): U.S. Census Bureau TIGER Line Files (1:100,000)
5. Municipal Boundaries (FL): U.S. Census Bureau TIGER Line Files (1:100,000)
6. Municipal Boundaries (GA): U.S. Census Bureau TIGER Line Files (1:100,000)
7. Rivers and Streams: USGS Digital Line Graphs (1:100,000)
8. Water Bodies: USGS Digital Line Graphs (1:100,000)
9. Wetlands: USGS Digital Line Graphs (1:100,000)
10. 100-Year Floodplain (FL): Federal Emergency Management Agency (FEMA - Scale varies)
11. 100-Year Floodplain (GA): FEMA, through the Georgia GIS Clearinghouse (Scale varies)

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therefore reasonably up to date. For the Florida communities in the basin, the maps are not as current; the most recently published rate map was for Nassau County (1992) and the least recent map is for Hilliard (1977).

In 1990, the National Flood Insurance Program initiated its Community Rating Service (CRS) program. This incentive program is based on an application process by local governments, and results in lower flood insurance premiums for residents. Any community participating in the NFIP can apply through CRS to achieve a classification better than "Class 10," which is the basic classification given to any community participating in NFIP. The community submits an application and documentation to show that it is implementing additional activities for which credit is requested. After review and verification, flood insurance premiums in the community may be reduced by up to 45%. There is no fee for participation. The only costs to the community are those of implementing any new programs desired, and staff time to prepare the CRS application. At present, none of the counties in the St. Marys basin participate in the CRS program.

The Macclenny/Glen St. Mary area of Florida continues to have flood damage and drainage problems associated with development near or in floodplains. According to the SJRWMD 1999 Water Management Plan, NFIP flood loss claims are concentrated in the Macclenny/Glen St. Marys area. Repetitive loss properties are located there as well as in Hilliard and southwest Nassau County. These are properties that have experienced repeated damage from flooding. The total amount of floodplain in the Florida portion of the basin comprises 190,399 acres, of which 3,000 acres are already developed and 16,200 acres are designated for development pursuant to future land use plans.

In the Georgia portion of the basin there appear to be fewer areas that are currently subject to flood damage from rainfall runoff, in part because development has mostly occurred farther from the river and on higher ground. For example, Folkston damage claims paid by NFIP from 1978 to 1999 total approximately $7,000, while damage claims paid for the same period for Macclenny totaled approximately $39,000. The damage claims figures are an indicator of level of damage, but many people do not have flood insurance or do not file a claim if they suffer a loss, so actual damage is higher than these claims indicate.

C.3 Strategies

Investigate protecting floodplain storage by encouraging local governments to adopt model shoreline ordinance

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Local governments adopt a model ordinance to protect natural floodplain functions	X	X	Local government action based on SJRWMD model ordinance	Adoption by four counties is voluntary; Mandatory rules if adopted	Committee encourages adoption of ordinances; Local building and development authorities monitor compliance	Short Term

A model shoreline ordinance should be considered for adoption by the four counties that make up the majority of the St. Marys River basin. This ordinance includes the requirement that development in floodplain areas be on pilings rather than fill. Substantially reducing the amount of fill placed in floodplains helps to preserve the natural floodplain's water storage function. While this does not address existing problems that have resulted from existing fill in floodplains and wetlands, it at least ensures that floodplain encroachment from future development will not further reduce available flood storage.

Encourage local governments to participate in National Flood Insurance Program's Community Rating Service in which reduced flood insurance premiums act as an incentive to improve ordinances on floodplain protection

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Protects floodplain functions, thereby saving lives, reducing property damage, and gaining reduced federal flood insurance premiums	X	X	Local action to take advantage of federal incentive program	Adoption is voluntary; Mandatory actions if adopted	Watershed association or SMRMC task force encourages local governments to take actions to protect floodplain functions; Possible actions include rules, public education, etc.	Long Term

Participation in the NFIP is an important first step in protecting both floodplains and private property. The Federal Emergency Management Agency (FEMA) estimated in 1995 that community floodplain management ordinances prevent over $770 million in annual damages to buildings and their contents nationwide.

There is an opportunity for any community in the NFIP to participate in the Community Rating System (CRS) and thereby reduce flood risks even further through activities that exceed the minimum NFIP standards. These activities fall into four categories: public information, mapping and regulations, flood damage reduction, and flood preparedness. Growing communities are awarded extra credit for programs that provide increased flood protection for new development, including preserving open space and managing stormwater.

All of the local governments in the St. Marys River basin are eligible to participate in the CRS because they already participate in NFIP. Participation in the CRS should especially be investigated for Nassau and Camden counties, which have larger amounts of insured properties than Charlton and Baker counties. The decision to participate in the CRS program will in part be determined by how the amount of flood insurance currently held by property owners.

By participating in this program, local communities can obtain reduced premiums as a reward for passing ordinances that regulate floodplain encroachment, such as the model shoreline ordinance referred to earlier in this section. The CRS application materials may

suggest other ideas for effective floodplain management and public education regarding property damage risk that is associated with floodplain encroachment.

D. Natural Systems

D.1 Existing and Projected Conditions

Resource Descriptions

The natural systems of the St. Marys River encompass biotic and abiotic elements (e.g., plants, animals, soils, water) and the natural interactions and processes that occur within this natural assemblage of elements. The St. Marys River is born in swamps: the North Prong from the Okefenokee Swamp in Charlton and Ware counties (Georgia) and the Middle Prong from the Pinhook Swamp and Osceola National Forest in Baker County (Florida). The upper river is characterized by wooded swampland on either side of a low stream bank. After the confluence of the Upper and Middle Prongs, the river doubles in size and the banks begin to rise, with white sandbars and occasional pine bluffs. Several miles below the Highway 121 bridge, the South Prong joins the St. Marys River. The northbound river then widens, deepens, and becomes increasingly more defined in banks as high as 10 to 15 feet, backed by taller sandy bluffs. Bluff and pine forests intermingle with swamp forests. Below Folkston, the river's width averages 90 to 120 feet. High banks continue intermittently to the river's estuary, with the highest bluffs near Crandall, Florida. Downstream of Folkston, however, the river has a tidal influence and the characteristic sandbars are no longer present. Below I-95, the river becomes a predominantly estuarine system.

Geological Features

Low sandy bluffs are the major geologic feature of the St. Marys River, with several outcroppings of limestone also present. The bluffs continue along much of the river, occasionally reaching 40 to 65 feet above normal water levels. Large white-quartz sand point bars provide a sharp contrast to the tannin-colored water of the channel. The river channel meanders through numerous S-bends, especially in the middle and upper segments of the St. Marys River (upstream of Folkston). Oxbow lakes can be found in these areas.

The special geology of the St. Marys River provides an interesting educational point. The hooked shape of the river's course results from water finding a way across two ancient sand ridges that intervene between the Okefenokee Swamp and the Atlantic Ocean.

Natural Communities

A large proportion of the St. Marys River basin is in natural or semi-natural condition. In 1993, forests and silvicultural land covered 90% of Baker County, 80% of Nassau County, 75% of Camden County, and 98% of Charlton County (KBN, 1993). Intensive harvesting of pines has occurred in the St. Marys basin since the early 1900s and the majority of original flatwoods and sandhills have been harvested, with most of the existing forests in planted pine. Each year, the four-county St. Marys River basin area produces approximately 31.2 million cubic feet of pulpwood, 26.8 million cubic feet of sawtimber, and 1.8 million cubic feet of veneer (plywood) logs (USFS 1996). Forests are in second- to third-rotation plantings since original cutting depending upon the forest

product being produced (i.e., timber on 30+-year rotations, pulpwood on 20-year rotations). Many forests adjacent to the St. Marys River corridor are in longer rotation plantings, which are beneficial to water quality and natural resources.

An ecological assessment of natural communities in the St. Marys River basin was published in *Natural Areas Inventory of the St. Marys River, Georgia-Florida*, prepared by J. Merrill Lynch and W. Wilson Baker for The Nature Conservancy (Lynch and Baker 1988). The goal of the survey was to identify the highest-quality natural areas in the basin. Lands were selected by using aerial photography, aerial surveys, records of endangered species occurrences, and interviews with local land managers to identify undisturbed natural communities. Large areas of the basin were removed from consideration by the researchers due to disturbance from commercial pine plantations. Field inventories were performed for all natural areas on foot and by canoe along the entire length of the St. Marys River. The extent of undisturbed natural communities identified in the basin was 84,568 acres, representing 8.7% of the 966,400 acres in the St. Marys River basin. Table D.1.1. summarizes the major ecological communities of the basin. Lynch and Baker (1988) provide more detailed descriptions of these resources.

Hardwood and pine/palmetto forest communities dominate the upstream portions of the river corridor, giving way to an estuarine environment towards the river's convergence with Cumberland Sound. It is within the estuarine area that the ecological communities identified as "Tidal Systems" can be found. Most of the pine forest communities are second or third generation pine plantations that are part of the significant silviculture industry in the area.

The Florida Natural Areas Inventory (FNAI 2000) has recorded the following intact natural systems of note in the following counties of the St. Marys River basin. While these intact natural systems may be common in the St. Marys River basin, "rare" or "imperiled" means that there are few intact examples of the ecosystem on a statewide or global basis and that they are in danger because of their inherent ecological fragility or from the threat of destruction (FNAI 2000). More detailed definitions for ecosystem status categories (e.g., rare, imperiled) may be viewed at http://www.fnai.org/.
NASSAU COUNTY globally rare or imperiled ecosystems include Coastal Grassland (rare), Coastal Interdunal Swale (rare), Coastal Strand (rare), Freshwater Tidal Swamp (rare), Seepage Slope (rare), Slope Forest (rare), and Sandhill (imperiled). Other systems in Nassau County are considered to be statewide rare or imperiled: Beach Dune (imperiled), Blackwater Stream (imperiled), Coastal Grassland (imperiled), Coastal Interdunal Swale (imperiled), Coastal Strand (imperiled), Depression Marsh (rare), Floodplain Forest (rare), Freshwater Tidal Swamp (rare), Maritime Hammock (imperiled), River Floodplain Lake (imperiled), Sandhill (imperiled), Seepage Slope (imperiled), and Slope Forest (imperiled) (FNAI 2000).

BAKER COUNTY includes natural communities of statewide concern: Basin Swamp (rare), Blackwater Stream (imperiled), and River Floodplain Lake (imperiled). (FNAI 2000).

The Georgia Natural Heritage Program lists a number of endangered species for CAMDEN and CHARLTON counties (see lists under Fauna), but does not provide records of notable intact ecosystems (GNHP 2000).

Wetlands

A detailed description of the wetland resources of the St. Marys is provided in *A Wetland Management Strategy for the St. Marys River Basin*, a report prepared by KBN Engineering and Applied Sciences for the SJRWMD (KBN, 1993). While large contiguous wetlands exist at the St. Marys River headwaters and estuary, most of the wetland resources in the remainder of the basin are forested and widely distributed in a mosaic of wetland and upland habitats (Figures D.1.1. and D.1.2.). Georgia's Charlton and Camden counties rank 2nd and 3rd in the state (behind the Okefenokee Swamp's Ware County) in the extent of their wetlands, with 247,222 and 186,486 acres respectively. The St. Marys River basin is listed by Georgia (GDNR, 1996) and by the U. S. Fish and Wildlife Service (USFWS, 1989) as a wetland area of regional significance, making the area eligible for funding from the Federal Land and Water Conservation Fund for potential conservation easement or land acquisition proposals.

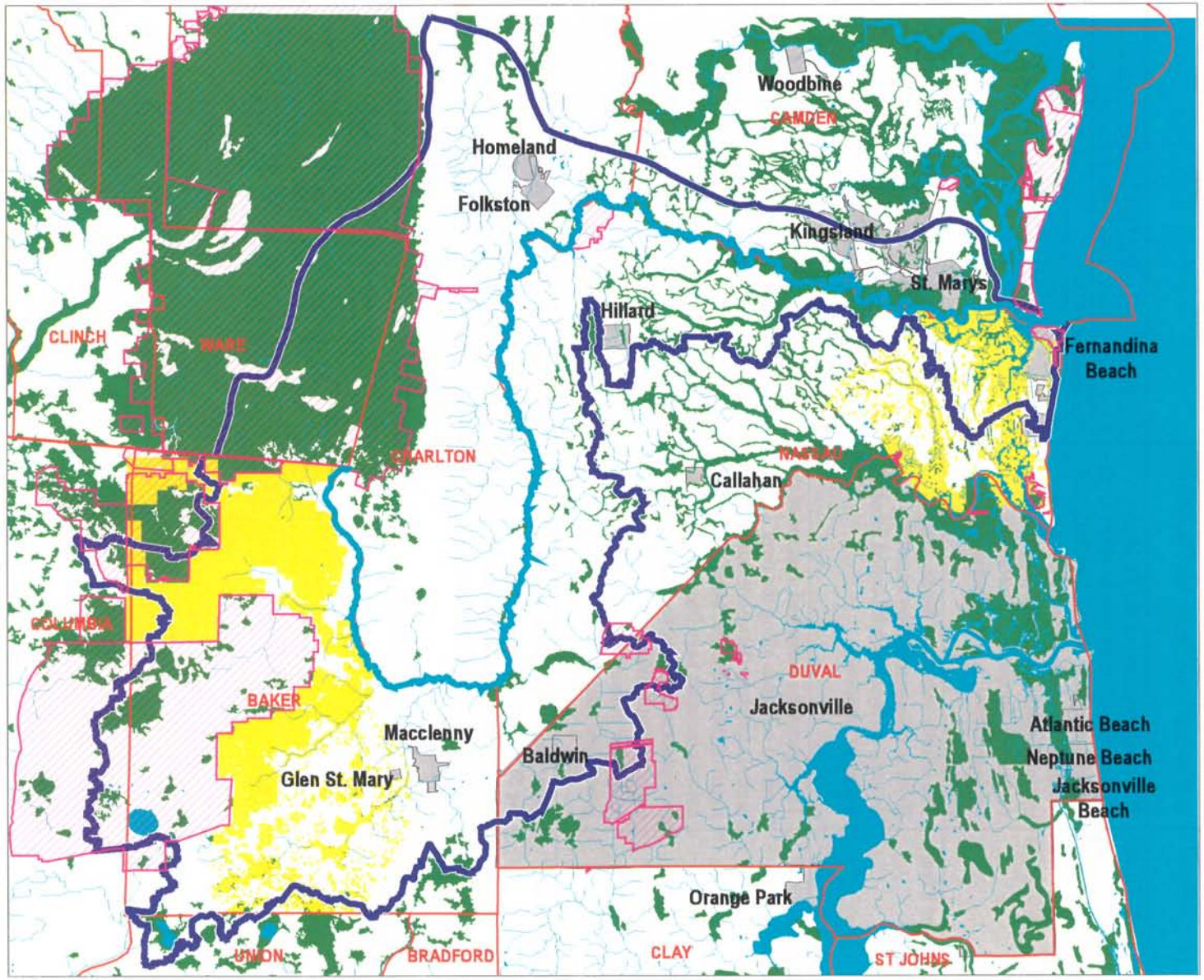
Fauna

As a result of the wide distribution of an undeveloped matrix of wetlands and uplands, the St. Marys River basin provides good-quality habitat for a diversity of plants and animals and critical habitat for a number of threatened and endangered species. The St. Marys basin also provides important travel corridors for the Florida black bear; dry sandhill habitat for Sherman's fox squirrel; open pine habitat for the Southeastern American kestrel, red-cockaded woodpecker, and gopher tortoise; foraging, roosting, and nesting habitat for a wide variety of wading birds; and a pristine blackwater river for several rare and endangered fishes (FNAI, 2000; GNHP, 2000; KBN, 1993).

Table D.1. 1. Major Ecological Communities of the St. Marys River Basin

Ecological Area	Characterization	Typical Plant Communities
Headwater Swamps	The headwaters of the St. Marys River lie in a relatively flat wetland region called the Northern Highlands or Okefenokee Basin. Swamp-bog-waterlily prairie wetland complexes of the Okefenokee-Pinhook Swamp system and extensive wet flatwoods characterize this area.	Carolina Bay – Shrub Bog
		Pond Pine Pocosin
		Prairie
Bluffs or Uplands	The bluffs segment of the St. Marys River generally runs between the Duval Uplands and Trail Ridge. Sandhills and xeric flatwoods dominate the natural upland vegetation and seepage through porous soil supports slope forests, seepage slopes, and bay swamps down slope.	Longleaf Pine/Turkey Oak Sandhill
		Live Oak – Laurel Oak Upland Forest
		Seepage Slope
		Bay Forest
Freshwater River Systems	The middle section of the St. Marys River is characterized by extensive riverine ecosystems with broad forested wetland floodplains.	Blackwater River Cypress – Gum Swamp
		Blackwater River Levee Forest
		Blackwater River Bottomland Hardwoods
		Creek Swamp
		Floodplain Lake
Flatwoods Systems	Throughout the basin and upslope of the forested wetlands along the river's central stretches, flatwoods dominate much of the landscape. Most of the native pinelands have been converted to pine plantation, however remnants of the natural communities are still found. Most pine plantations are second or third generation slash or loblolly pine.	Longleaf Pine/Blackjack Oak/Wiregrass
		Longleaf Flatwoods
		Slash Pine Flatwoods
		Pond Pine Flatwoods
		Cypress Pond
		Open Depression Pond
Tidal Systems	From the barrier islands and west into the St. Marys "meander plain" is a zone of estuarine influence characterized by saltmarsh and maritime hammock communities.	Smooth Cordgrass (*Spartina alterniflora*) Marsh
		Black Needlerush (*Juncus roemerianus*) Marsh
		Sawgrass-Wild Rice (*Cladium-Zizaniopsis*) Marsh
		Wax Myrtle-Yaupon Holly-Saltbush Shrub Marsh
		Cypress-Gum-Maple Tidal Swamp Forest
		Maritime Forest

Figure D.1.1. Public Lands, Wetlands, and Strategic Habitats of the St. Marys River Basin



LEGEND:

- County Boundaries
- Surface Water Basin Boundaries
- Rivers and Streams
- Water Bodies
- Municipalities
- Wetlands
- Strategic Habitat Conservation Areas (Florida only)
- Public Lands

DATA SOURCES:

1. Surface Water Basins (FL) - St. Johns River Water Management District (1:24,000)
2. Surface Water Basins (GA) - U.S. Geological Survey (USGS) Hydrologic Units (1:250,000)
3. County Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
4. County Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
5. Municipal Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
6. Municipal Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
7. Rivers and Streams: USGS Digital Line Graphs (1:100,000)
8. Water Bodies: USGS Digital Line Graphs (1:100,000)
9. Wetlands: USGS Digital Line Graphs (1:100,000)
10. Public Lands (FL): St. Johns River Water Management District (Scale varies – multiple sources)
11. Public Lands (GA): Georgia Department of Natural Resources (1:100,000)
12. Strategic Habitat Conservation Areas (FL only): Florida Fish & Wildlife Conservation Commission (from the "Closing the Gaps" Report – to provide the miniumum habitat necessary for viable populations of plants and animals to survive into the future)

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GIS Associates, Inc., with Pandion Systems, Inc.
For the St. Marys River Management Committee
August 22, 2000

The Florida Natural Areas Inventory (FNAI, 2000) and Georgia Natural Heritage Program (GNHP, 2000) have recorded the following endangered and threatened species in the St. Marys River basin: wood stork (*Mycteria americana*), peregrine falcon (*Falco peregrinus*), red-cockaded woodpecker (*Picoides borealis*), gray bat (*Myotis grisescens*), Kirtland's warbler (*Dendroica kirtlandii*), Florida black bear (*Ursus americanus floridanus*), flatwoods salamander (*Ambystoma cingulatum*), piping plover (*Charadrius melodus*), American alligator (*Alligator mississippiensis*), eastern indigo snake (*Drymarchon corais couperi*), Atlantic sturgeon (*Acipenser oxyrhynchus*), southeastern American kestrel (*Falco sparverius paulus*), least tern (*Sterna antillarum*), and Florida sandhill crane (*Grus canadensis*). While the American alligator has recovered significantly from its endangered status, it is still managed under the U.S. Endangered Species Act of 1973.

St. Marys River basin species that are rare or of special concern in Florida or Georgia (FNAI, 2000; GNHP, 2000) include: Sherman's fox squirrel (*Sciurus niger shermani*), southeastern myotis [bat] (*Myotis austroriparius*), Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), big brown bat (*Eptesicus fuscus*), southeastern weasel (*Mustela frenata olivacea*), Atlantic saltmarsh mink (*Mustela vison lutensis*), round-tailed muskrat (*Neofiber alleni*), Sherman's short-tailed shrew (*Blarina carolinensis =brevicaulis*), southeastern shrew (*Sorex longirostris longirostris*), gopher tortoise (*Gopherus polyphemus*), Alligator snapping turtle (*Macroclemys temminckii*), Florida redbelly turtle (*Pseudemys nelsoni*), spotted turtle (*Clemmys guttata*), eastern diamondback rattlesnake (*Crotalus adamanteus*), timber rattlesnake (*Crotalus horridus*), Florida pine snake (*Pituophs melanoleucus mugitus*), pine woods snake (*Rhadinaea flavilata*), striped crayfish snake (*Regina alleni*), striped newt (*Notophthalmus perstriatus*), gopher frog (*Rana capito*), carpenter frog (*Rana virgatipes*), many-lined salamander (*Stereochilus marginatus*), flatwoods salamander (*Ambystoma cingulatum*) bald eagle (*Haliaetus leucocephalus*), osprey (*Pandion haliaetus*), Cooper's hawk (*Accipiter cooperii*), swallow-tailed kite (*Elanoides forficatus*), merlin (*Falco columbarius*), great egret (*Ardea alba*), reddish egret (*Egretta rufescens*), little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), tricolored heron (*Egretta tricolor*), limpkin (*Aramus guarauna*), yellow-crowned night heron (*Nyctanassa violacea*), black-crowned night heron (*Nycticorax nycticorux*), white ibis (*Eudocimus albus*), glossy ibis (*Plegadis falcinellus*), least bittern (*Ixobrychus exilis*), black rail (*Laterallus jamaicensis*), American oystercatcher (*Haematopus palliatus*), brown pelican (*Pelecanus occidentalis*), black skimmer (*Rynchops niger*), Caspian tern (*Sterna caspia*), royal tern (*Sterna maxima*), Sandwich tern (*Sterna sandvicensis*), Bachman's sparrow (*Aimophila aestivalis*), MacGillivray's seaside sparrow (*Ammodramus maritimus macgillivraii*), Worthington's marsh wren (*Cistothorus palustris griseus*), worm-eating warbler (*Helmintheros vermivorus*), hairy woodpecker (*Picoides villosus*), and Panamerican balsamscale (*Elyonurus tripsacoides*). The U. S. Fish and Wildlife Service has designated the St. Marys River as a sandhill crane area (USFWS, 1982). Again, while some of these species may be relatively common in the St. Marys River corridor, they are considered imperiled on a statewide or national basis.

Of particular note are 10 species of fish considered to be either rare or endangered by Florida or Georgia that are known to exist in the waters of the St. Marys River or its tributaries. These include the Atlantic sturgeon (*Acipenser oxyrhynchus*), common snook (*Centropomus undercimalis*), mud sunfish (*Acantharchus pomotis*), black-banded sunfish (*Enneacanthus chaetodon*), eastern mudminnow (*Umbra pygmaea*), banded topminnow (*Fundulus auroguttatus*), and golden topminnow (*Fundulus chrysotus*). The St. Marys River is considered one of the best redbreast sunfish rivers in Southeast, and it also supports large bluegill and largemouth bass populations. The St. Marys is one of the few coastal plain rivers in the Southeast that has not been invaded by flathead catfish, which have profound detrimental effects on native fish populations (GDNR, 1999).

Several endangered marine mammals have been recorded in the waters of the Atlantic Ocean, Cumberland Sound, and the St. Marys River estuary. The area is federally protected as a calving ground for the critically endangered northern right whale (*Eubalaena glacialis*). The St. Marys River estuary serves as a wintering ground for endangered West Indian manatee (*Trichechus manatus*). The estuary and beaches serve as foraging and nesting areas for the threatened Atlantic loggerhead turtle (*Caretta caretta*), the endangered Atlantic green turtle (*Chelonia mydas*), the endangered Kemp's ridley turtle (*Lepidochelys kempii*), and the endangered leatherback turtle (*Dermochelys coriacea*).

Flora

The St. Marys River is one of the more pristine river systems in Florida and Georgia. As such, it hosts a variety and abundance of plant life, with numerous (23+) threatened or endangered plant species identified within the St. Marys River basin (Lynch & Baker 1988). While there are a number of plant species in the area protected as threatened or endangered under Georgia and Florida law, there currently are not any federally (U.S.) threatened or endangered vascular plants recorded from the 4-county St. Marys River basin (FNAI 2000, GNHP 2000). Current Georgia-protected plants may be viewed at http://www.state.ga.us/dnr/wild/natural.html, and current Florida-protected plants at http://www.fnai.org/.

Land Cover

Current land use in the St. Marys River basin is represented in Figure D.1.2. Silviculture is the dominant use of the forested land in the St. Marys River basin and is considered the primary management objective by many landowners. Forests in the basin cover approximately 98% of Charlton County, 90% of Baker County, 80% of Nassau County, and 75% of Camden County. The vast majority of pinelands are in slash pine (*Pinus elliottii*) or loblolly pine (*Pinus taeda*) plantations. Pinelands in the St. Marys River basin are typically dominated by even-aged stands (KBN 1993). Refer to Table D.1.1. for coverage of various natural communities in the St. Marys River basin.

Natural Areas

Existing natural areas in the St. Marys River basin include public and private holdings and wildlife management areas on private forestlands (Figure D.1.1). Public holdings include the Okefenokee Swamp National Wildlife Refuge and Osceola National Forest at

the headwaters of the river, and the Cumberland Island National Seashore and Fort Clinch State Park at the river's estuary. Florida's Ralph E. Simmons Memorial State Forest and about half of Florida's Cary State Forest are in the St. Marys River basin. Military holdings that border on the watershed include the King's Bay Naval Station in Georgia and Whitehouse Naval Outlying Field in Florida.

A high proportion of the land in the St. Marys River basin (approximately 70%) is in large-tract private ownership for silvicultural and conservation purposes (Figure 4-2 in KBN 1993). TNC's Pinhook Swamp tract provides a connection between the Okefenokee National Wildlife Refuge and Osceola National Forest, and further protects the headwaters of the Middle Prong of the St. Marys River. Other large landowners engage in silvicultural activities and maintain family homesteads and retreats on the extensive private holdings.

Four Florida wildlife management areas (WMA) in the basin are on public and private forested areas under state management for wildlife resources and recreation: Nassau WMA (northeast of Callahan and bounded by I-95/A1A/108; 26,455 acres, approx. 20% in basin), Lake Butler WMA (southeast of Olustee and bounded by 90/231/238; 31,102 acres, all in SMR basin), Osceola WMA (in the Osceola NF; 194,503 acres, approx. 75% in basin), and Cary WMA (in the Cary State Forest; 3,413 acres, approx. 50% in basin). There are no wildlife management areas in Georgia's Charlton or Camden counties that fall within the St. Marys River basin.

Lynch and Baker (1988) identified exceptional remaining high-quality natural areas along the length of the river corridor. Lynch and Baker characterized thirty St. Marys River basin sites as ecologically significant. Twenty-two of the sites are high-quality natural areas (totaling approximately 24,060 acres), and eight of the sites are small rare plant sites (totaling approximately 28 acres). Lynch and Baker also identified the Pinhook Swamp headwaters area (84,568 acres) as an important site for protection. The natural sites identified by Lynch and Baker represent about 8.7% of the St. Marys River basin area. Descriptions of these natural areas are included in the Lynch and Baker report (1988).

Ecosystem Management and Ecological Linkages

Reports on the St. Marys River have repeatedly emphasized the regional significance of the basin or watershed as a whole, functioning system and a sum that is much more than the combination of its parts. The strategy to protect this whole system should be to integrate management of the entire system through cross-boundary cooperation. Ecosystem management (EM) theory can be used to direct this local effort. EM basically is management of the whole rather than the parts. It implies an iterative (repetitive feedback) process whereby management decisions are made based on best available science and then revised as new science is gathered.

EM also involves looking beyond the boundaries of the St. Marys River watershed for ecological connections and linkages with neighboring areas. For example, the St. Marys River corridor provides a continuous riparian connection from the Okefenokee Swamp

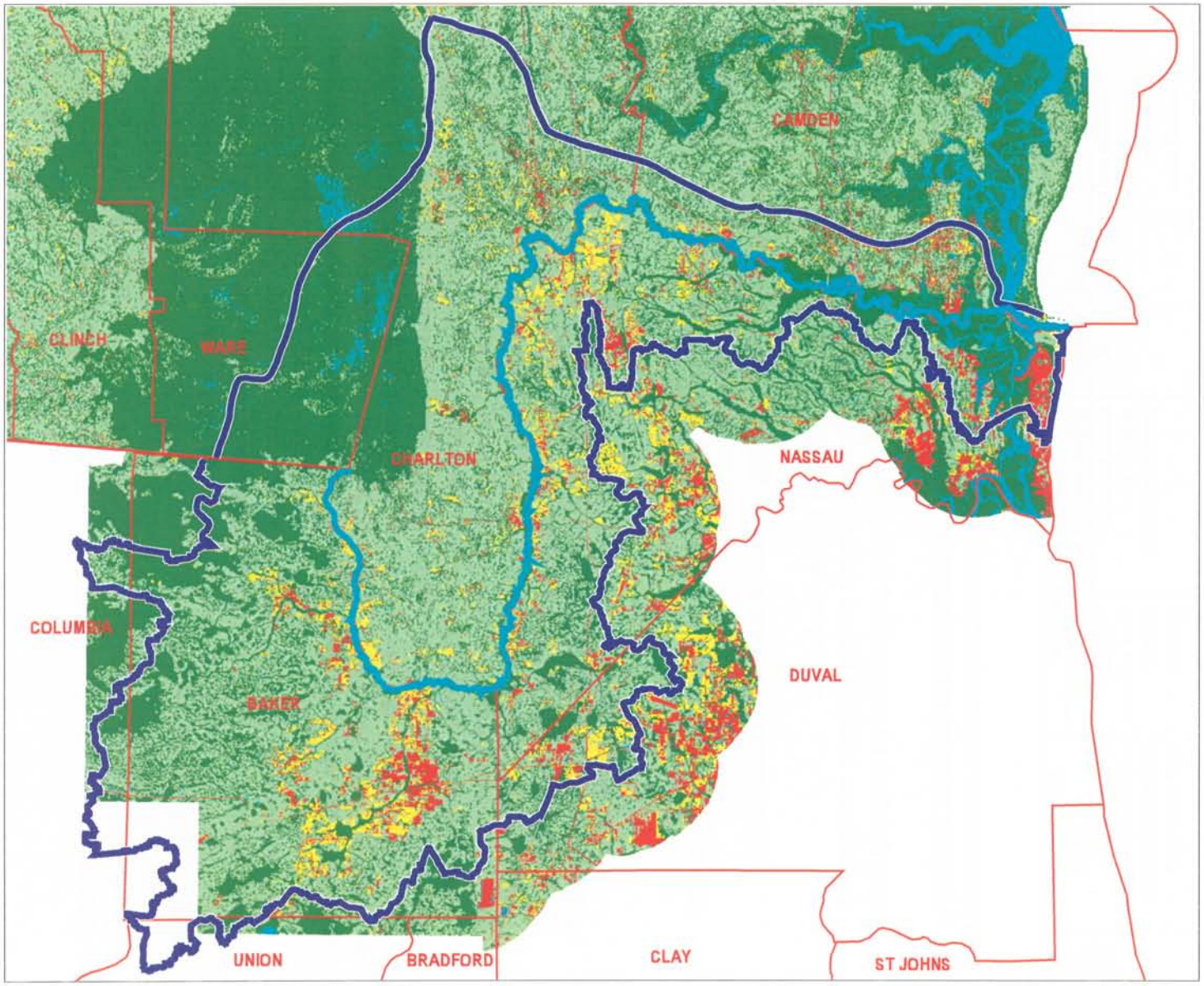
National Wildlife Refuge and Pinhook Swamp/Osceola National Forest area through the Ralph E. Simmons Memorial State Forest, and large private tracts (e.g., Coleraine, White Oak Plantation), to Georgia's Cumberland Island National Seashore, Florida's Fort Clinch State Aquatic Preserve, and Atlantic Ocean right whale calving grounds.

The St. Marys River basin also provides expanses of relatively undeveloped land that provide ecological connections between areas outside of the basin, such as the Satilla River basin to the north, the Okefenokee Swamp National Wildlife Refuge/Pinhook Swamp/Osceola Forest complex to the west, the Upper Black Creek basin to the southwest, and the Nassau River/Timucua Reserve/Lower St. Johns River to the southeast. Providing ecological linkages to areas outside of the basin is particularly important for foraging wading birds and wide-ranging wildlife species, such as the Florida black bear. The southwestern region of the St. Marys River watershed (where the river "dips" into Florida) is habitat for the Florida black bear, red-cockaded woodpecker, and other species. Protection of natural resources in this area and providing ecological linkages southward to the Upper Black Creek basin (which is proposed to link further southward to the Ocala-Wekiva region) would be very beneficial to these wide ranging species (KBN 1993). This area is perhaps the most likely place for a southern linkage to be formed with the St. Marys River basin, as linkages and migration routes beyond the Timucuan Preserve in Duval County to the southeast of the river are limited by development.

D.2 Accomplishments

Recent accomplishments include the purchase of conservation lands, continuing good private land stewardship, and a shift toward positive interest in land acquisition and protection in Nassau County. Since the publication of Lynch and Baker (1988) and the St. Marys wetlands management strategy (KBN, 1993), the Pinhook Swamp connector between the Osceola National Forest and Okefenokee National Wildlife Refuge has been protected as a purchase by The Nature Conservancy. Other recent developments include the federal listing as threatened of the flatwoods salamander (*Ambystoma cingulatum*) and the protection of calving grounds for the endangered Right Whale in the Atlantic Ocean adjacent to the St. Marys River estuary.

Figure D.1.2. Landcover of the St. Marys River Basin



LEGEND:

County Boundaries

Surface Water Basin Boundaries

Land Cover Categories:

- Urban
- Agriculture & Rangeland
- Forest
- Water
- Wetlands

DATA SOURCES:

1. Surface Water Basins (FL) - St. Johns River Water Management District (1:24,000)
2. Surface Water Basins (GA) - U.S. Geological Survey (USGS) Hydrologic Units (1:250,000)
3. County Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
4. County Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
5. Landcover (FL): St. Johns River Water Management District, 1995 (1:24,000) - photointerpreted
5. Landcover (GA): Georgia Department of Natural Resources, 1989-1990 (1:24,000) - 100 ft resolution (reclassified from Landsat Imagery)

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D.3 Strategies

The protection of natural systems and their functions is a complex matter that involves protecting private property rights while reaching or maintaining targets, such as good water quality and healthy biological systems. The Committee understands the issues involved with the protection of natural systems and has chosen to adopt a philosophy of primarily focusing on the river corridor and secondarily on the basin. While the Committee understands that what occurs in the basin or watershed will ultimately impact the river proper, overall upland systems issues are beyond the scope of this plan. This plan aims to protect natural systems and natural resources by defining a number of strategies for protecting surface water quality, wetlands, and floodplain functions in the river corridor and its tributaries. Maintenance of natural water flows and water quality are important to maintaining the diverse natural systems of the St. Marys River basin. Actions such as building and septic tank setbacks to protect wetlands and aquatic systems have the secondary benefit of protecting natural systems. Protected streamside zones that act as filters, reducing sediment and slowing the movement of stormwater runoff, also provide direct benefits to plants, animals, fishes, and other aquatic and terrestrial life forms (See Section V. A. Water Quality). Further consideration should be given to sensitive natural communities that occur in the area, particularly upland areas along the river, such as bluffs, seepage slope forests, and intact or restorable pine sandhill ecosystems.

There are three major strategies for further protection and conservation of the natural systems and species of the St. Marys River basin:

1. Take advantage of available funding for land protection or conservation easements;
2. Enhance stewardship opportunities on private lands; and
3. Integrate the river management plan into other natural resource management plans, comprehensive plans, and conservation programs on an on-going basis.

When private land that has important resource value becomes available for purchase, advise private landowners of nonprofit and governmental conservation easement and land acquisition programs

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Protects and manages sensitive natural areas	X	X	Local action to propose land protection projects	Voluntary local action to propose projects; Government (municipal, county, state, federal) or private action to undertake projects	Watershed association provides information to help land sellers take advantage of existing funding (e.g., Florida Forever, Georgia Greenspace, federal Land and Water Conservation Fund)	Long Term

Protection of the natural systems of the St. Marys River and natural systems within its basin will depend on both protection and management of natural areas and voluntary stewardship of surrounding areas (such as tree farms, agricultural areas, and rural

neighborhoods) to support a healthy river basin system (KBN, 1993). A basinwide perspective is important in the development of overall conservation and management strategies. The Committee's specific advice to the four counties is to focus their efforts on the river and a definite corridor, 200 feet from either bank, in order to place attention on a limited area to gain the best results with limited resources. Other private, state, regional, and some potential local (outside the Committee) entities may focus their own resources on attention to basinwide natural systems issues.

Protection of important functions should be accomplished through local, voluntary initiatives. The Committee can propose sensitive natural areas, with willing sellers, for protection and take advantage of available municipal, county, state, and federal funding programs for creation of parks, greenways, and protected areas. The Committee may also provide information about conservation programs to landowners preparing to sell their land. Some programs include the Georgia P2000 and Georgia Greenspace programs, the Florida Forever and Save Our Rivers programs, and the federal Land and Water Conservation Fund (See Section G). Many of these programs will acquire conservation lands or conservation easements for local management. Private organizations that may provide funding for local initiatives include The Nature Conservancy, the Trust for Public Lands, and the Georgia Conservancy. Land trusts may be created as a local, community-based land conservation mechanism.

Continue to encourage, enhance, and support stewardship opportunities on private lands

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Protects and manages natural resources	X	X	Individual or local action to take advantage of existing land protection incentives	Voluntary	Watershed association publicizes land stewardship incentive programs or conservation easement programs to private landowners; New incentives may be developed or proposed; Individuals or communities voluntarily participate.	Long Term

The combination of large-tract ownership and productive forested lands in the St. Marys River basin has resulted in good river health and water quality. At present, large private landholdings are key to land stewardship in the basin -- these lands and their uses that are compatible with the river should be maintained. Numerous incentives for private land stewardship and conservation activities exist in Georgia and Florida, including conservation reserve programs for farmers and stewardship programs for foresters. These programs should be publicized and new incentives should be developed on the local level to maintain the land uses that have kept the river healthy and supported the regional economy.

Stewardship of endangered species on private lands is being enhanced by the recent regulatory trend toward Habitat Conservation Plans (HCPs) and Species Management Plans (SMPs), which allow private landholders flexibility in providing enhanced species

habitat without falling under increased sanction for species protection over existing levels. Continued compliance with silvicultural Best Management Practices (BMPs) is another of the many voluntary approaches to private land stewardship that helps to maintain both water quality and riparian wildlife habitat zones.

An important facet of the strategy for the long-term protection of the St. Marys River basin will be the maintenance of the silvicultural tradition of the region and the prevention of the conversion of silvicultural lands to more intensive agricultural, industrial, or suburban/urban uses. The development of incentives or conservation easements for maintenance of lands under silviculture should be part of the long-term strategy for protection of natural resources in the St. Marys River basin.

Integrate the St. Marys River management plan into other natural resource management plans, comprehensive plans, and conservation programs on an on-going basis

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★9	Focuses on the management of whole systems rather than parts and provides for an integrated planning and management process		✖	Local action to take advantage of existing programs	Voluntary	Watershed associations encourage cross boundary management coordination through existing programs (e.g., Florida Ecosystem Management Areas, Georgia River Basin Planning Initiative); Management plans are regularly reviewed and updated with new scientific information.	Long Term

The integration of the river plan into other natural resource management plans and programs would carry forward the work and strategies of the plan and would enable other parties to assist the Committee and four counties in implementing the river plan, with its attached assumptions, guiding principles, and philosophies. Those responsible for other plans and programs would have the opportunity to learn of and cooperate with the Committee's work, ideas, and interests.

Participation of a local watershed association (instead of the Committee) in Ecosystem Management-style efforts in Georgia (St. Marys River Basin Planning initiative through GDNR's regional office) and Florida (St. Marys & Nassau Ecosystem Management Area initiative through FDEP's Fort Clinch State Park) will provide beneficial information exchange and coordination to enhance watershed management efforts. The efforts and progress of such endeavors should be reported to the Committee for feedback and opportunity to advise the four county commissions.

E. Recreational and Public Use

E.1 Existing and Projected Conditions

Recreational Sites

Major public recreational sites on the St. Marys River include Ralph E. Simmons Memorial State Forest (FL), Okefenokee Swamp National Wildlife Refuge (US), Fort Clinch State Park (FL), and Cumberland Island National Seashore (US).

- The 3,638-acre *Ralph E. Simmons Memorial State Forest* is located east of Boulogne, on the Florida bank of the St. Marys River. The forest shelters an abundance of fish and wildlife in pine forests, cypress swamps, wetlands, oxbow lakes, and along the banks of the St. Marys River. The forest offers hiking, horseback riding, off-road bicycling, primitive canoe access, riverside camping, group camping, and a variety of hunting seasons for whitetail deer, hog, wild turkey, and small game.
- The *Okefenokee National Wildlife Refuge* is the largest national wildlife refuge in the eastern United States. The 396,000-acre refuge is a vast peat bog containing 70 "islands." The swamps, forests, prairie wetlands, and remote waterways of the refuge provide habitat for an incredible variety of wildlife. Boardwalks, guided boat tours, freshwater fishing, boat ramps, an observation tower, driving tours, camping, cabins, hunting, and picnicking are available at the margins of the refuge, while wilderness water trail, fishing platform, and camping are available within the refuge. A visitor's center/museum and the Chesser Island Homestead provide educational and historical interest.
- *Fort Clinch State Park* is located at the Florida border on the northern tip of Amelia Island. Natural communities include high dunes, white quartz sand beaches, salt marshes, meandering tidal creeks, and coastal hammock forests. Nature trails, a long pier for fishing and wildlife viewing, campgrounds, picnic areas, Atlantic beaches, and historic Fort Clinch provide recreational activities.
- *Cumberland Island National Seashore* is a largely undeveloped, barrier island with 16 miles of pristine, white-sand beaches and extensive salt marshes. The island has an amazing variety of wildlife and natural communities, from fresh water ponds to live oak and pine forests and sand dune communities. There are 21 hiking trails and a number of historic structures and ruins on the island. Reservations are required for camping, picnicking, or reaching the island (by ferry or private launch).

Public and private recreational sites within the St. Marys River watershed but not contiguous to the river itself include the Pinhook Swamp/Osceola National Forest complex (USFS/TNC), Cary State Forest and Wildlife Management Area (FL), Lake Butler Wildlife Management Area (Private/FL), and Nassau Wildlife Management Area (Private/FL).

- The *Osceola National Forest/Pinhook Swamp* is an extensive area of longleaf and slash pine forests and cypress and bay swamps. Several active colonies of the endangered red-cockaded woodpecker live in the forest. Big Gum Swamp Wilderness lies at the heart of the forest. Activities include a boardwalk and trails, auto tour, camping, hiking, fishing, hunting, swimming, and picnicking. A reenactment of the Civil War Battle of Olustee takes place each year near Ocean Pond. Portions of the Osceola National Forest are managed as Wildlife Management Areas by the State of Florida.

- Florida's 3,413-acre *Cary State Forest* provides hiking, hunting, picnicking, and wildlife observation opportunities at the edge of the St. Marys River watershed along Highway 301 south of Callahan. About half of the forest is in the watershed and most of the forest is managed as a Wildlife Management Area.
- The *Lake Butler Wildlife Management Area* (31,102 acres) at Olustee, Florida provides hunting, hiking, lake fishing, and wildlife observation opportunities to the public on privately owned land managed under cooperative agreement by the Florida Fish and Wildlife Conservation Commission.
- The *Nassau Wildlife Management Area* (26,455 acres) is northwest of the I-95/A1A interchange in Nassau County, Florida. This area provides hunting, hiking, and wildlife observation opportunities to the public on privately owned land managed under cooperative agreement by the Florida Fish and Wildlife Conservation Commission.

Georgia's Crooked River State Park lies just north of the St. Marys River watershed boundary in St. Marys, and Georgia's Stephen C. Foster State Park is just outside the Okefenokee National Wildlife Refuge. There are no Georgia Wildlife Management Areas within the St. Marys River watershed.

Historic and Cultural Sites

Perhaps one of the most interesting historical features of the St. Marys River are ballast stones discarded along the river bank (especially on the Florida side) from sailing ships that were taking on water. The stones and pilings from 100+-year-old piers are still visible along the river's edge in the vicinity of King's Ferry east of Folkston/Boulogne. The ballast stones are especially notable given the rarity of stones of any kind in northeast Florida and southeast Georgia. This site has not been marked or interpreted in any way for its cultural or historic value.

Other historic sites in the St. Marys River basin exist at the Okefenokee National Wildlife Refuge and Cumberland Island National Seashore. A number of additional nationally registered historic and cultural sites exist within the St. Marys River basin:

Camden County, GA

- Crooked River Archeological Site
- Duck House, Cumberland Island
- Dungeness Historic District, Cumberland Island
- High Point – Half Moon Bluff, Cumberland Island
- Kingsland Commercial Historic District
- Main Road, Cumberland Island
- John Houston McIntosh Sugarhouse, St. Marys
- Plum Orchard, Cumberland Island
- Rayfield Archeological Site, Cumberland Island
- St. Marys Historic District
- Stafford Plantation, St. Marys
- Table Point Archeological Site, Cumberland Island

Charlton County, GA

- Charlton County Courthouse, Folkston
- John M. Hopkins Cabin, Folkston
- William Mizell, Sr. , House, Folkston

Baker County, FL

- Burnsed Blockhouse, Sanderson
- Old Baker County Courthouse, Macclenny
- Olustee Battlefield, Olustee

Nassau County, FL

- Bailey House, Fernandina Beach
- Fairbanks House, Fernandina Beach
- Fernandina Beach Historic District
- Fort Clinch, Fernandina Beach
- Merrick-Simmons House, Fernandina Beach
- Original Town of Fernandina Historic Site
- John Denham Palmer House, Fernandina Beach
- Tabby House, Fernandina Beach

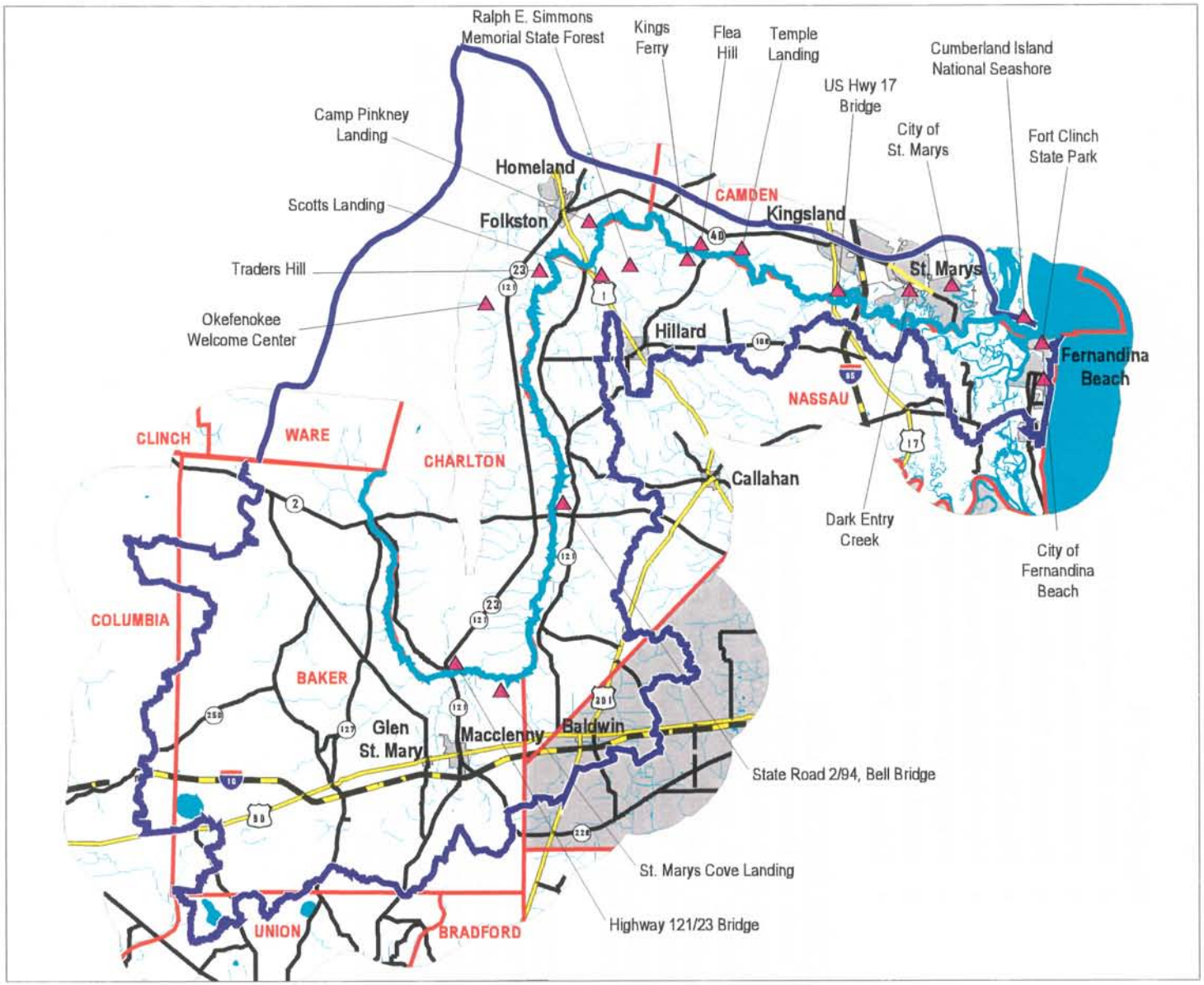
Wildlife Observation Sites

Florida and Georgia each have established bird watching and "watchable wildlife" driving trails that include stops in the St. Marys River Basin. Georgia's Colonial Coast Birding Trail, coordinated through the Georgia DNR and through voluntary efforts, includes Crooked River State Park, Cumberland Island National Seashore, and Okefenokee National Wildlife Refuge as watchable wildlife stops. The Great Florida Birding Trail has begun to be designed in Nassau county by the Florida Game and Fresh Water Fish Commission and volunteer birdwatchers.

Current Recreation and Public Use of the St. Marys River

The existing level of recreation and public use of the St. Marys River is somewhat undefined because of the lack of any formal recreational evaluation of the river. Anyone visiting the river will certainly notice that boating, fishing, and canoeing are major river recreational activities, as would be expected in a healthy blackwater river with good fish and wildlife populations. A number of access sites occur along the St. Marys River (Figure E.1.1)

Figure E.1.1. Public Access Sites Along the St. Marys River



LEGEND:

- County Boundaries
- Surface Water Basin Boundaries
- Rivers and Streams
- Water Bodies
- Municipalities
- River Access Sites

Major Roads (USGS):

- Interstate
- US Highway
- State Road
- County Road

DATA SOURCES:

1. Surface Water Basins (FL) - St. Johns River Water Management District (1:24,000)
2. Surface Water Basins (GA) - U.S. Geological Survey (USGS Hydrologic Units (1:250,000)
3. County Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
4. County Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
5. Municipal Boundaries (FL): US Census Bureau TIGER Lin Files (1:100,000)
6. Municipal Boundaries (GA): US Census Bureau TIGER Lir Files (1:100,000)
7. Rivers and Streams: USGS Digital Line Graphs (1:100,000
8. Water Bodies: USGS Digital Line Graphs (1:100,000) edited for mapping purposes by Rich Doty of Pandion Team
9. Roads: USGS Digital Line Graphs (1:24,000)
10. River Access Sites: Approximate locations taken by Rich Doty of Pandion Team from St Marys River Guide

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Boating and Fishing Regulations

Boating and fishing regulations in the state of Florida and Georgia are coordinated through a Reciprocal Agreement wherein each state agrees to enforce boating and fishing regulations for the other. The Reciprocal Agreement includes the following points:

- Covers the waters and the banks of the St. Marys River, not including its tributaries.
- All Georgia laws and regulations (e.g., statewide creels limits, state boating regulations) apply on the Georgia side of the St. Marys River.
- All Florida laws and regulations apply on the Florida side of the St. Marys River.
- Any person who has a valid fishing license and properly issued permits or licenses required by Georgia or Florida in their possession (including Georgia Senior (65+) Lifetime License or Florida senior citizen proof of age) may sport fish for freshwater fish in the waters covered.
- A Florida saltwater fishing license is required to fish for or possess saltwater fish on the Florida side of the St. Marys River, including for senior citizens.
- The Georgia Honorary Disability License is not recognized by Florida under this agreement.

Georgia creel limits allow for up to 10 largemouth bass (12+ inches long), 30 crappie, and 50 sunfish or bream. There is no Georgia limit on catfish. Florida limits for the St. Marys River are similar and allow up to 10 largemouth bass (all 12+ inches long), 2 striped bass (22+ inches long), 30 black or white crappie (=speckled perch), 50 panfish (=bluegill, sunfish, warmouth), and 15 pickerel (chain, grass, redfin). The Florida possession limit is 50 fish total, regardless of species. A properly licensed angler from either state may fish the waters and banks of the other state of the St. Marys River, as long they follow the creel limits and regulations of the state in which they are fishing. Anglers fishing the Florida saltwater portion of the St. Marys River must have a Florida saltwater fishing license without exception.

Georgia Department of Natural Resources Boating Regulations that apply to the St. Marys River are as follows:

> *"All vessels cannot be operated over idle speed within 100 feet of any moored or anchored vessel, vessel adrift, or any wharf, pier, piling, or persons in the water, or shoreline next at a full-time or part-time residence, public park, public beach, public swimming area, marina, restaurant, or other public use area. Personal watercraft (jetskis) cannot be operated in excess of 5 mph when within 100 feet of any moored or anchored vessel, shore, dock, pier, wharf, piling, bridge, or person in the water. "*

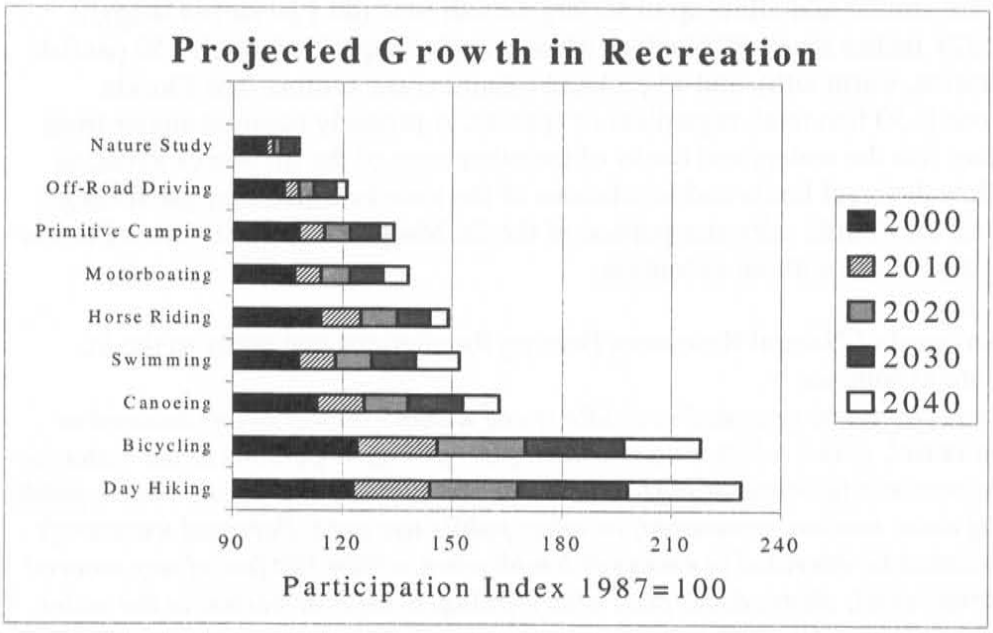
There is enforcement of boating and fishing regulations on the St. Marys River. From July 1, 1999, to June 30, 2000, there were 65 boating violations recorded and 13 fishing violations. Of the boating violations, the most common violations were operating above idle speed (8), insufficient personal floatation devices (8), failure to regulate speed (5), and operating without proper identification (8). Of the thirteen fishing violations the most common violation was fishing without a license (8).

Projected Recreation and Public Use of the St. Marys River

It is difficult to characterize the projected recreational and public use in the St. Marys River basin, but there have been a few statewide and national studies looking at future recreational demand from a broader perspective. Nationally there has been a shift in recreational interests from traditional forms of recreation such as hunting to other forms of recreation such as canoeing. Demand for low-impact forms of recreation is expected to increase 86% over current levels by 2040. Demand for fishing is expected to increase approximately 45% by 2040, whereas demand for big and small game hunting is expected to decline by 10% during the same period (USFS 1992).

Forecasts also are available to predict the types of recreation that will be more popular in the future. Forty-year national predictions for non-game recreation anticipate that the overall growth for nature study (9%), off-road driving (16%), primitive camping (24%), motor boating (29%), and horseback riding (31%) will be moderate. Demand for lake and stream swimming (41%), canoeing/kayaking (44%), bicycle riding (76%), and day hiking will be large (86%) (USFS, 1992). This translates to an annualized national growth in recreational demand between 0. 2% and 2. 1% over the next 40 years (Figure E. 2. 1).

Figure E.1.2. Projected Growth in Non-Game Recreation, 2000-2040



Source: USFS 1992

Ecotourism, or nature-based tourism, is the fasting growing industry in the world (Visit Florida, 1999). Florida and Georgia are at the core of this trend for the southeastern United States. For example, a survey done by Visit Florida found that over 50% of tourists engaged in nature-based activities (Visit Florida, 1999). The respondents to this survey prefer opportunities that the St. Marys River and surrounding areas offer as the most popular nature-based activities for tourists (Table E.2.1).

Table E.1.1. Most Popular Nature-Based Activities for Vacationers in Florida

Activity	Percent most popular
Visiting Parks	61. 3%
Exploring a Preserved Area	51. 6%
Wildlife Viewing (non-birds)	48. 8%
Hiking	36. 6%
Walking Nature Trails in Ecosystems	31. 2%
Exploring a Major Protected Swamp, Marsh	23. 0%
Visiting Unique Natural Places	22. 6%
Biking	21. 5%
Environmental Education	20. 4%
Bird Watching	20. 4%
Freshwater Fishing	16. 1%
Canoeing or Kayaking	6. 5%
Swimming	6. 5%
Boating	3. 2%

Source: Visit Florida 1999

The most recent Georgia Statewide Comprehensive Outdoor Recreation Plan, or SCORP, (GDNR, 1995) provides a summary of public meetings held in each region of the state. The Waycross public forum for Region 11 (which includes the St. Marys River) resulted in the following comments being recorded:

- Enhance facilities at Laura Walker S. P., including rental cabins and a golf course;
- Provide more trails for bikes, skaters, handicapped people, horseback riders;
- Develop trails and greenways along the Satilla;
- Provide more playgrounds and equipment;
- Increase recreational funding;
- Develop a master plan to improve tourism and recreation funding.

Overall recommendations of the Georgia SCORP Task Force included:

1. Continue to acquire new lands and protect existing lands for green space, river corridors, passive parks, natural beauty, and historic value.
2. Incorporate outdoor recreation planning into local comprehensive land use plans.
3. Incorporate sufficient green areas, trails connecting parks, greenway corridors, and river corridors into local zoning laws.
4. Dedicate a percentage of existing state revenues toward recreation use and land purchases as an investment for the future.
5. Use a portion of the state fuel tax for alternative transportation projects that provide recreational as well as transportation benefits (i.e., bike trails).
6. Develop a tax incentive strategy for the private sector in meeting local recreational needs.
7. Examine other states' user fees and revenue sources that could be adapted for Georgia outdoor recreational funding.

8. Acquire, increase, and improve access for all citizens to public lands for hunting, fishing, canoeing, mountain biking, equestrian use, etc.
9. Develop multi-user trails within greenways or river corridors in different regions of the state, operated as linear state parks.
10. Connect two or more traditional parks and outdoor recreation areas by means of linear parks and greenways, wherever possible.
11. Establish a statewide volunteer coordinator program to make best use of volunteer services and special interest groups such as senior citizens, corporate sponsors, etc.
12. Develop a Georgia Recreation Foundation to serve as a clearinghouse and coordinating agency for matching communities' needs with funding opportunities such as grants, inventors, etc. (GDNR, 1995)

The most recent Florida Statewide Comprehensive Outdoor Recreation Plan (FDEP 1994) forecasts recreational needs in the state by region. In keeping with overall population growth, the SCORP analysis for the Northeast Florida Region (Nassau, Baker, Duval, Clay, Putnam, St. Johns, and Flagler) predicts increasing demand in all areas of outdoor recreation (Table E. 2. 2).

Table E.1.2 Projected Recreational Activity, Northeast Florida Region, 2000

Activity	Demand # User Occasions	Additional Resource Needs	Units	Opportunity for St. Marys River to address need?
Saltwater Beach Activities	5,531,116	#	Linear miles	No
Bicycle Riding	5,249,562	315	Linear miles	Yes
Freshwater Beach Activities	1,230,280	1. 09	Linear miles	No
Picnicking	988,065	#	Tables	No
Freshwater Fishing (Boat)	501,616	*	*	
Saltwater Fishing (Non-boat)	1,305,065	15,028	Pier Linear ft.	Maybe
RV/Trailer Camping	537,263	#	Camp sites	No
Saltwater Boat Ramp Use	782,355	#	Lanes	No
Archeological/Historic Sites	2,169,608	23. 87	Sites	Yes
Hiking	702,079	67. 64	Linear miles	Yes
Freshwater Fishing (Non-boat)	702,931	2,684	Pier Linear ft.	Yes
Nature Study	280,393	#	Linear miles	No
Horseback Riding	251,342	32. 39	Linear miles	Yes
Freshwater Boat Ramp Use	227,992	#	Lanes	No
Canoeing	47,461	*	*	
Tent Camping	156,845	#	Camp sites	No
Hunting	253,919	#	Acres	No

Needs have been met in region. * Needs not calculated by DEP. Source: FDEP 1994

In particular, this information indicates that there is unmet demand in the northeast Florida and St. Marys River watershed region for the following forms of recreation:

- archeological/historic sites,
- freshwater fishing piers,
- bicycle riding trails,
- hiking trails, and
- horseback riding trails (FDEP 1994).

The St. Marys River corridor and watershed may be well suited to satisfy identified recreational needs. The Florida SCORP provides further details about which suppliers are currently providing recreation in the area (FDEP 1994). For example, archeological and historic sites in the area are predominantly state, federal, and private sites, while cities and counties provide very few of these opportunities. Conversely, freshwater fishing piers are primarily county, city, and private, while there are few state and federal opportunities in these areas. This may be a function of the type of recreation, but may also point out where there are opportunities for private or governmental entities to be encouraged to provide different types of recreational opportunities.

E.2 Accomplishments

Recent accomplishments in public recreation for the St. Marys River include:

1. Cleaning, restoration, and improvement of two river boat ramp/access points by volunteers organized by the St. Marys River Management Committee;
2. Publication of *The St. Marys River Guide*, which is a colorful and attractive guide and foldout map to the river and to public recreation and access points, published by the St. Marys River Management Committee in cooperation with the SJRWMD of Florida;
3. Acquisition of the Boulogne Welcome Station that will be rebuilt as a museum/education center and Committee offices.

There have been no recent or major changes in fishing, hunting, or recreational regulations in the St. Marys River watershed in the last ten years.

E.3 Strategies – Recreation

Create a corridor recreation plan to enhance recreational opportunities and businesses

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Establishes recreational zones that provide a variety of opportunities, prevents conflicts, and establishes carrying capacity indicators to monitor impacts of increasing demand	✖		Local action by SMRMC with expert input	Voluntary planning effort; Mandatory if rules are adopted	Watershed association leads cross-boundary planning effort with input from state recreational agencies (GDNR, FFWCC); Local governments may adopt recreational rules if necessary.	Short Term

Perhaps one of the most important strategies for the St. Marys River watershed association will be to lead a cross-boundary planning effort to create a recreational management plan that accomplishes several things:

- Measures existing recreational uses and demand, and projects future uses and demand (one canoe outfitter on the river stated that most of his customers come from the Jacksonville area, with about 10% coming from outside the area);
- Establishes river access points that take into consideration protection for adjacent landowners, reduce recreational conflicts, and control use levels;

- Establishes a plan of recreational management zones to provide a variety of recreational opportunities and river access points while reducing recreational conflicts and controlling recreational capacity; and
- Establishes standards and a monitoring plan for tracking and preventing recreational impacts on the St. Marys River (one way of assessing recreational carrying capacity).

A comprehensive St. Marys River recreational plan can address issues of public access (often noted by citizens who either want more access or want more control over access), and can also devise creative strategies for taking advantage of growing interest in ecotourism and cultural/historic tourism activities – for example, boardwalks along the river at the site of old sailing ship piers to provide historic interpretation, and riverside wildlife observation and pier fishing opportunities. Historical reenactments or an annual clipper ship festival (complete with small sailing ships) could serve as both a cultural and natural tourism draw for the area. Ultimately, a recreational plan can take into account the views of area stakeholders about exactly how much ecotourism – and attendant economic growth – should be encouraged along the St. Marys River.

E.4 Strategies – Public Outreach and Education

The second major set of strategies for recreation and public use of the St. Marys River is based on education and public outreach actions.

Continue and expand annual river cleanups

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★7	Continues programs to perform annual river cleanups and improve river recreational sites	×		Local action	Voluntary	Committee or watershed association continues cleanup and access development activities	Long Term

Continue and expand publications programs: River Guide, POSM newsletter, and website

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★8	Continues programs to publish the *St. Marys River Guide, POSM* newsletter and website	×		Local action	Voluntary	Committee or watershed association continues to update and produce the *POSM* newsletter and *St. Marys River Guide*; Future guides include expanded details about fishing and hunting rules and cross-boundary enforcement reciprocity; Actions are assessed for their level of public involvement.	Long Term

Solicit assistance to design a media effort to increase local knowledge of river issues, enforcement, and protection activities

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Increases local citizens' knowledge of river issues and protection activities	×	×	Local action	Voluntary	Watershed association or SMRMC task force undertakes marketing campaign; Marketing activities (e.g., mascot, advertisements, river slogan, etc.) may be assessed for their impact on public knowledge and opinion.	Long Term

Solicit assistance to develop a St. Marys River ecology/stewardship curriculum for local schools in cooperation with existing state and SJRWMD education programs

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Educates students about the ecology and stewardship of their local river in the classroom	×	×	Local action	Voluntary	Watershed association with educator volunteers undertakes curriculum and activity design; Various student assessment methods provide for evaluation.	Long Term

Host a river conference periodically to foster intergovernmental coordination and provide a forum for public river awareness

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Involves citizens in a St. Marys River stewardship conference and educates citizens with broadly distributed stewardship information	×	×	Local action	Voluntary	SMRMC task force researches stewardship actions and programs available in Georgia and Florida; Success is measured by number of citizens participating in conference, by information requested and distributed, and by number of new local participants in stewardship programs (e.g., forest stewardship programs, backyard wildlife programs)	Long Term

Encourage initiation of a "river neighborhoods" program

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Educates and recognizes neighborhoods or communities who reduce pollutants, protect green space, and provide wildlife habitat	X	X	Local action	Voluntary	Watershed association or SMRMC task force develops "river neighborhood" certification based on existing models (e.g., Florida Yards and Neighborhoods); Success is determined by number of neighborhoods participating.	Long Term

Continue stakeholder consensus-building activities with periodic workshops to review plan accomplishments and generate additional public support

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Builds public support and involves stakeholders in future decisions	X	X	Local action with input of expert facilitators, if desired	Voluntary effort	SMRMC leaders or staff gain facilitator training; expert facilitators are hired to guide public meetings as necessary.	Short Term

Hold a biennial public water quality conference

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Updates stakeholders on the status of river water quality	X	X	Local action with data from existing monitoring programs	Voluntary	Committee or watershed association plans and organizes conference.	Short Term

F. Economic Development

F.1 Existing and Projected Conditions

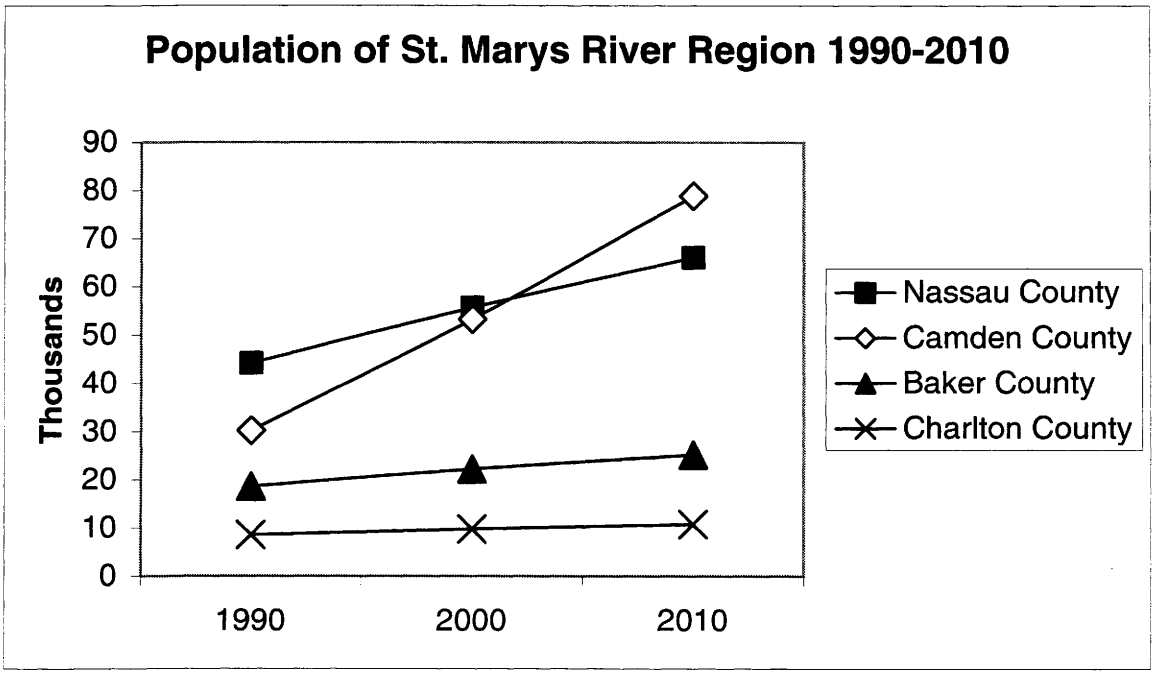
The St. Marys River region is comprised primarily of Charlton and Camden Counties, Georgia and Nassau and Baker counties, Florida, which encompass 2,600 square miles. As of August 2000, this region has a resident population of 141,000 people, approximately 48,000 households, and an average per capita income of $19,082 dollars. (Table F.1.1). Per capita income ranges from $15,800 in Charlton County to $26,175 in Nassau County. The population of the region is projected to grow by 28 % to 181,000 in the year 2010. Growth is expected to be most rapid in Nassau and Camden Counties (Figure F.1.1).

Table F.1.1. St. Marys River region population, land area (LA), households (HHs), total personal income (TI in millions), and per capita income (PCI).

	Population (thousands)						
County	**1990**	**2000**	**Proj. 2010**	**LA (sq. mi.)**	**# HHs (1996)**	**MM $ TPI (1998)**	**$ PCI (1998)**
Camden County Georgia	30. 2	53. 3	78. 9	630	15,846	765	16,159
Charlton County Georgia	8. 5	9. 7	10. 7	781	3,441	149	15,804
Baker County Florida	18. 6	22. 2	25. 2	585	8,063	383	18,191
Nassau County Florida	44. 2	55. 7	66. 1	652	20,427	1,450	26,175
Total Four-County Region	**101. 5**	**140. 9**	**180. 9**	**2,648**	**47,777**	**2,747**	

Sources: UFBEBR 1997, UFBEBR 2000, Georgia Governors Office 2000, US Department of Commerce 2000, MIG 2000.

Figure F.1.1: Predicted Population of St. Marys River Region



Sources: UFBEBR 1997, UFBEBR 2000

Economic Characteristics

Economic characteristics of the four-county St. Marys River region are summarized in Table F.1.2. Economic output, representing sales of products and services, totaled $4.04 billion (B), and employment totaled 52,205 people. Total value added amounted to $2.43B, including employee compensation of $1.47B, income for business proprietors of $104 million (M), other property income and corporate profits of $739M and indirect business taxes paid of $119M.

The leading economic sectors of the region, in terms of economic output, were manufacturing ($1.3B), government ($940M), services ($536M), finance, insurance, real estate ($358M), and trade ($323M). In terms of employment, the government sector was the largest with 17,750 jobs, followed by services (10,701), trade (9,670), manufacturing (5,866), and construction (2,938).

Within the manufacturing sector, forest products was the largest industry subsector, including paper mills ($500M), paperboard mills ($293M), paper bags ($53M), logging contractors ($44M), boxes ($35M), and sawmills ($28M). Other major manufacturing subsectors included surgical appliances ($65M), guided missiles ($55M), agricultural chemicals ($55M), transportation equipment ($46M), apparel ($25M), steel wire, surface active agents, boat building, and ready mix concrete. Government subsectors include federal military ($489M) and non-military ($207M), and state and local government education ($59M) and non-education ($166M).

The service sector's major subsectors include hotels ($536M), management and consulting services ($125M), and doctors and dentists. For utilities, major subsectors are motor freight ($57M), communications ($34M), electric services ($29M), water transportation ($25M), and railroads ($15M). Within the finance, insurance, and real estate sector, real estate represents $135M in output, owner-occupied dwellings are $112M, and banking is $85M. Within the trade sector, eating and drinking establishments represent $111M, and other major industries are wholesale trade ($48M), food stores ($48M), automotive dealers and service stations ($46), miscellaneous retail, general merchandise stores, and building materials and gardening stores. In the construction sector, at least $10 million in output is associated with residential structures, industrial and commercial buildings, government facilities, highways, and maintenance and repair. Within the agriculture sector, forestry products, poultry, dairy farms, and greenhouse and nursery products all have outputs greater than $10 million.

Economic Context

The St. Marys River region is economically linked to and dominated by the much larger economy of the greater Jacksonville metropolitan area (Duval County). Approximately 35% of Nassau and Baker county households commute to Duval County for employment (UFBEBR, 1997). If Duval County is included, the St. Marys River region has a population of over 1 million persons, and total personal income of $22 billion. When combined with Duval county, the region had economic output of $46.3B, total value added of $28.7B, and employment of 579,561 people.

Table F.1.2. Economic activity of the St. Marys River region (Charlton, Camden, Nassau, Baker counties) by major sectors and subsectors with at least $10 million output (smaller subsectors are included in totals).

Industry Sectors (In order of total output in millions of dollars 1996.)	**Industry Output (M $)**	**Employ-ment (jobs)**	**Employee Compen-sation (M $)**	**Total Value Added (M $)**
Total All Industries	4,038. 0	52,205	1,466. 0	2,429. 0
Total Manufacturing	1,312. 1	5,866	282. 6	462. 4
Paper Mills, Except Building Paper	499. 6	2,081	118. 8	193. 7
Paperboard Mills	292. 5	708	44. 3	90. 5
Surgical Appliances and Supplies	64. 9	375	18. 9	21. 2
Complete Guided Missiles	55. 0	279	16. 2	16. 8
Agricultural Chemicals, N. E. C	54. 9	161	8. 4	22. 8
Bags, Paper	52. 8	316	11. 0	18. 7
Transportation Equipment, N. E. C	45. 9	205	9. 3	9. 2
Logging Camps and Logging Contractors	43. 9	263	7. 5	18. 7
Paperboard Containers and Boxes	34. 9	194	8. 2	10. 6
Sawmills and Planing Mills, General	28. 2	177	5. 5	8. 9
Apparel from Purchased Materials	24. 9	320	6. 5	7. 8
Steel Wire and Related Products	18. 0	67	3. 2	5. 3
Surface Active Agents	13. 6	20	1. 7	4. 8
Boat Building and Repairing	10. 8	102	3. 4	3. 5
Ready-mixed Concrete	10. 6	63	3. 5	4. 5
Total Government	940. 1	17,750	686. 8	931. 5
Federal Government - Military	489. 2	6,056	292. 3	489. 2
Federal Government - Non-Military	207. 1	4,279	190. 4	207. 1
State & Local Government - Non-Ed.	165. 8	4,993	135. 5	165. 8
State & Local Government - Education	59. 0	2,206	59. 0	59. 0
U.S. Postal Service	10. 3	168	8. 2	7. 4
Total Services	536. 2	10,701	201. 5	297. 5
Hotels and Lodging Places	125. 2	2,170	43. 8	72. 3
Management and Consulting Services	87. 6	1,426	33. 2	42. 9
Doctors and Dentists	40. 0	581	17. 3	22. 5
Motion Pictures	32. 5	270	13. 0	17. 4
Hospitals	27. 9	573	13. 3	16. 8
Automobile Repair and Services	27. 3	384	6. 4	12. 3
Accounting, Auditing and Bookkeeping	20. 2	648	3. 9	17. 8
Nursing and Protective Care	17. 7	513	9. 5	11. 7
Other Medical and Health Services	17. 2	300	6. 6	9. 3

Industry Sectors (In order of total output in millions of dollars 1996.)	Industry Output (M $)	Employ-ment (jobs)	Employee Compen-sation (M $)	Total Value Added (M $)
Total Finance, Insurance, Real Estate	357. 5	1,880	38. 2	256. 7
Real Estate	134. 7	726	7. 5	93. 4
Owner-occupied Dwellings	111. 5	0	0. 0	88. 5
Banking	84. 5	677	19. 8	58. 0
Total Trade	323. 5	9,670	136. 4	221. 1
Eating & Drinking	111. 4	3,309	38. 2	55. 9
Wholesale Trade	48. 3	582	18. 8	33. 2
Food Stores	47. 5	2,041	25. 5	40. 7
Automotive Dealers & Service Stations	45. 7	1,098	20. 1	34. 7
Miscellaneous Retail	27. 3	1,032	13. 0	22. 9
General Merchandise Stores	22. 4	918	10. 4	16. 8
Total Construction	234. 9	2,938	58. 8	82. 8
New Residential Structures	77. 4	951	14. 2	20. 3
New Industrial and Commercial Buildings	41. 7	440	9. 5	13. 3
Maintenance and Repair Other Facilities	40. 7	714	15. 3	21. 3
New Government Facilities	33. 2	319	9. 5	13. 3
Maintenance and Repair, Residential	20. 6	275	5. 3	7. 3
New Highways and Streets	11. 7	117	2. 5	3. 5
Total Transportation, Communication, Utilities	182. 0	1,265	39. 7	93. 2
Motor Freight Transport and Warehousing	57. 4	610	13. 2	21. 2
Communications, Except Radio and TV	33. 6	138	6. 0	21. 5
Electric Services	28. 7	98	5. 2	25. 4
Water Transportation	25. 3	126	4. 2	6. 0
Railroads and Related Services	14. 9	95	5. 6	9. 2
Total Agriculture	148. 5	1,831	20. 8	80. 9
Forestry Products	52. 9	106	2. 3	27. 3
Poultry and Eggs	34. 3	304	3. 2	11. 0
Dairy Farm Products	19. 2	222	2. 3	9. 2
Greenhouse and Nursery Products	13. 6	261	3. 4	12. 0

Source: MIG 2000

F.2 Economic Analysis

Local Economic Impacts

A standard approach in community economic development is to emphasize the maintenance and expansion of industries that have the greatest local impact, due to the nature of their economic linkages and their use of available local resources. Industries that produce products or services for export markets and industries that use local resources have the greatest impacts on a local economy.

The total economic impact of a particular industry may be represented by an economic multiplier constructed with an input-output model. This method captures the total economic impacts, or multiplier effects, of changes in output or employment in particular industries. Multiplier effects also account for changes in output of other industries that supply inputs to a particular industry (indirect effects), and changes in personal consumption expenditures of industry employees (induced effects). For further information about the theory and application of input-output models for analysis of local economic impacts, see Mulkey and Hodges (2000).

Economic multipliers (Table F.1.3) for the St. Marys River region were developed with the *Implan Pro* input-output analysis software and associated databases for the four counties in Florida and Georgia (MIG 2000). Value-added, output, and employment multipliers for major industries of the region are shown in Table F.1.3. The multipliers are ranked by the magnitude of their effect on the local economy. The value-added and output multipliers represent the change in this measure for a given change in sales to final demand for the industry, while the employment multiplier represents the change in number of jobs per million dollars change in demand. For example, a change in federal military spending of $1 million would result in a change in the local economy of $1.6M in output, $1.4 in value added, and 22.9 jobs.

Sectors with higher multiplier values can have a greater impact on the local economy in either a positive or negative direction, depending on growth or downturns in the given sector. Sectors associated with relatively high multiplier values were government sectors (education, military, other state and local government, postal service) and trade and services sectors (hotels, miscellaneous retail, general merchandise stores, food stores, automotive service, real estate). Several general business service sectors (accounting, banking, wholesale trade, electric, sanitary services/steam supply, railroads) and an agriculture sector (greenhouse and nursery products) were included in the group with the highest multipliers. Although manufacturing (particularly paper products) is a large industry sector in the St. Marys River region, it has a low multiplier effect on the local economy.

In summary, these multipliers reflect the overall importance of these industry sectors to the St. Marys River regional economy. The government and service sectors are particularly valuable to the local economy in this respect.

Table F.1.3. Economic multipliers for selected industries in the St. Marys River region.

Industry Sector	Value Added	Output	Employment (jobs/M $ output)
State & Local Government - Education	1. 481	1. 658	49. 0
Federal Government - Non-Military	1. 475	1. 647	32. 0
State & Local Government - Non-Education	1. 468	1. 633	41. 2
Federal Government - Military	1. 451	1. 604	22. 9
Food Stores	1. 383	1. 707	55. 6
Miscellaneous Retail	1. 365	1. 709	50. 4
Accounting, Auditing and Bookkeeping	1. 360	1. 660	43. 8
Greenhouse and Nursery Products	1. 350	1. 617	29. 9
Electric Services	1. 342	1. 596	14. 1
Owner-occupied Dwellings	1. 301	1. 691	12. 1
Automotive Dealers & Service Stations	1. 289	1. 721	36. 6
General Merchandise Stores	1. 282	1. 722	53. 5
Real Estate	1. 217	1. 724	17. 8
Wholesale Trade	1. 185	1. 684	24. 1
Motion Pictures	1. 171	1. 977	21. 6
U. S. Postal Service	1. 167	1. 642	27. 0
Arrangement Of Passenger Transportation	1. 142	1. 608	30. 6
Nursing and Protective Care	1. 139	1. 670	40. 3
Sanitary Services and Steam Supply	1. 137	1. 627	22. 1
Banking	1. 130	1. 611	18. 2
Communications, Except Radio and TV	1. 093	1. 628	14. 4
Hotels and Lodging Places	1. 084	1. 710	29. 4
Hospitals	1. 067	1. 675	31. 7
Doctors and Dentists	1. 057	1. 709	26. 2
Railroads and Related Services	1. 055	1. 620	16. 5

Note: Multipliers reflect total effects, including direct, indirect and induced effects. Source: MIG, 2000

Projected Impacts of Future Economic Change

For the purpose of analysis, two possible future scenarios related to the St. Marys River region are changes in timber harvest levels and changes in nature-based tourism. Table F.1.4. summarizes the simulated economic impacts of changes in the timber industry and in nature-based tourism on other industry sectors in the St. Marys River region. These changes may be either positive or negative in direction, reflecting an increase or decrease in economic activity.

For a $1 million change in timber harvests, there would be a total economic output impact in the four-county region of $1.65 million, including indirect effects of $215 thousand (K) and induced effects of $437K in addition to the $1M direct effect of the change in harvest levels. Other impacts would include a change in employment of 14 jobs, and a change in total value added of $1 million.

The impact of tourism was simulated in terms of 1,000 tourist visitor days, using national average daily expenditures by tourists for food, lodging, transportation, and other local retail purchases of $154 per person-day. The total economic impacts of 1,000 tourists on the St. Marys River region include $256K in output, $159K in value added, and 5.1 jobs.

In summary, these projected economic impacts reflect the importance of the timber industry to the St. Marys area. In addition, this analysis shows that an effective, small tourism industry and related services could locally capture a greater share of economic benefits from recreational use of the natural resource base, rather than requiring so many local residents to commute to Jacksonville for their income. A relatively small increase in tourism would contribute measurable economic benefits as well as help to diversify the economy.

Table F.1.4. Simulated economic impacts of timber harvest and tourism changes in the St. Marys River region (Values in year-2000 dollars).

Industry	Output Impact (Thousand $)				Value Added Impact (Thousand $$)	Jobs Impact
	Direct	Indirect	Induced	Total		
Impact of $1 Million Timber Harvest						
Agriculture	1,000	124	2	1,126	605	5.4
Construction	0	4	43	47	17	0.6
Manufacturing	0	10	9	19	6	0.1
Trans, Com, Utilities	0	5	15	20	11	0.1
Trade	0	7	47	54	38	1.6
Finance, Ins, Real Estate	0	12	54	66	47	0.3
Services	0	51	51	103	66	2.2
Government	0	1	214	215	214	4.1
Total	1,000	215	437	1,651	1,004	14.4
Impact of 1,000 Tourist Visitor Days						
Agriculture	0	1	<1	<1	<1	0.0
Construction	0	2	6	8	3	0.1
Manufacturing	0	2	1	3	1	0.0
Trans, Com, Utilities	0	5	3	8	5	0.1
Trade	68	2	10	80	45	2.3
Finance, Ins, Real Estate	0	10	11	21	15	0.1
Services	86	9	10	105	61	2.0
Government	0	1	28	29	28	0.5
Total	155	31	70	256	159	5.1

F.3 Strategies

Promote conservation easements and/or less-than-fee acquisitions that maintain a forest-based economy and protect river resources by continuing compatible agricultural uses, such as tree farming

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★6	Maintains a forest-based economy and protects river resources by continuing compatible agricultural uses, such as tree farming	✕	✕	Coordinated local action	Promotion of programs for voluntary local or individual participation	Committee/subcommittee explores and promotes conservation easement and less-than-fee acquisition programs that might help to maintain a forest-based economy.	Long Term

Designate a subcommittee to explore establishment of incentives for businesses compatible with river management goals

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Captures greater share of revenues in local services	✕	✕	Coordinated local action	Voluntary coordination and planning effort	Committee/subcommittee explores with local economic development leaders the coordination of incentives for local river-related businesses such as job training programs or tax relief.	Long Term

The services, finance, and trade sectors of the St. Marys River region are relatively underdeveloped. Value added in the services sector represented only 12% of the total value added, compared to 21% for the overall economies of Florida and Georgia. A large portion of the service functions in the four-county area are provided by businesses in the Jacksonville area, which represents a loss of value to the local economy that could be avoided if local services were better developed. As demonstrated by the economic impact analysis, continued encouragement for the silvicultural industry and incentives for development of a natural-resource-based tourism industry will help to capture a greater share of economic benefits in the immediate area. These changes might be accomplished through incentives such as provision of tax abatements and job training programs, and through better coordination of local economic development councils.

G. Government Policy

G.1 Existing and Projected Conditions

In both Florida and Georgia, there is a recent emphasis on defining links between land use planning, water supply, and water quality. However, private and local incentives for planning and resource-based development are not obvious. Watershed management and integrated approaches to planning and permitting are becoming accepted, but building interstate and multiple county agreements is still a new process. The ability to maintain water quality and natural systems in the face of large-scale land use change will directly depend on the amount of undeveloped land and on development practices. Land use planning and development design should consider how to incorporate natural systems (e.g., water quality and quantity, biodiversity, wildlife migration) into what once may have been a relatively simple density and tax-base formula.

The St. Marys River Basin includes two states, eight counties (four primary), and ten municipalities (Figure G.1.1). Along with the federal government, each entity has its own water resource and land use policies and regulations. In general, the policies and regulations governing water and land use are not consistent between governmental entities. For example, some local governments (e.g., Baker, Nassau, Charlton counties), have not yet developed regulations to support their comprehensive plans, whereas others (e.g., Camden County) have some river edge development controls in the form of zoning regulations.

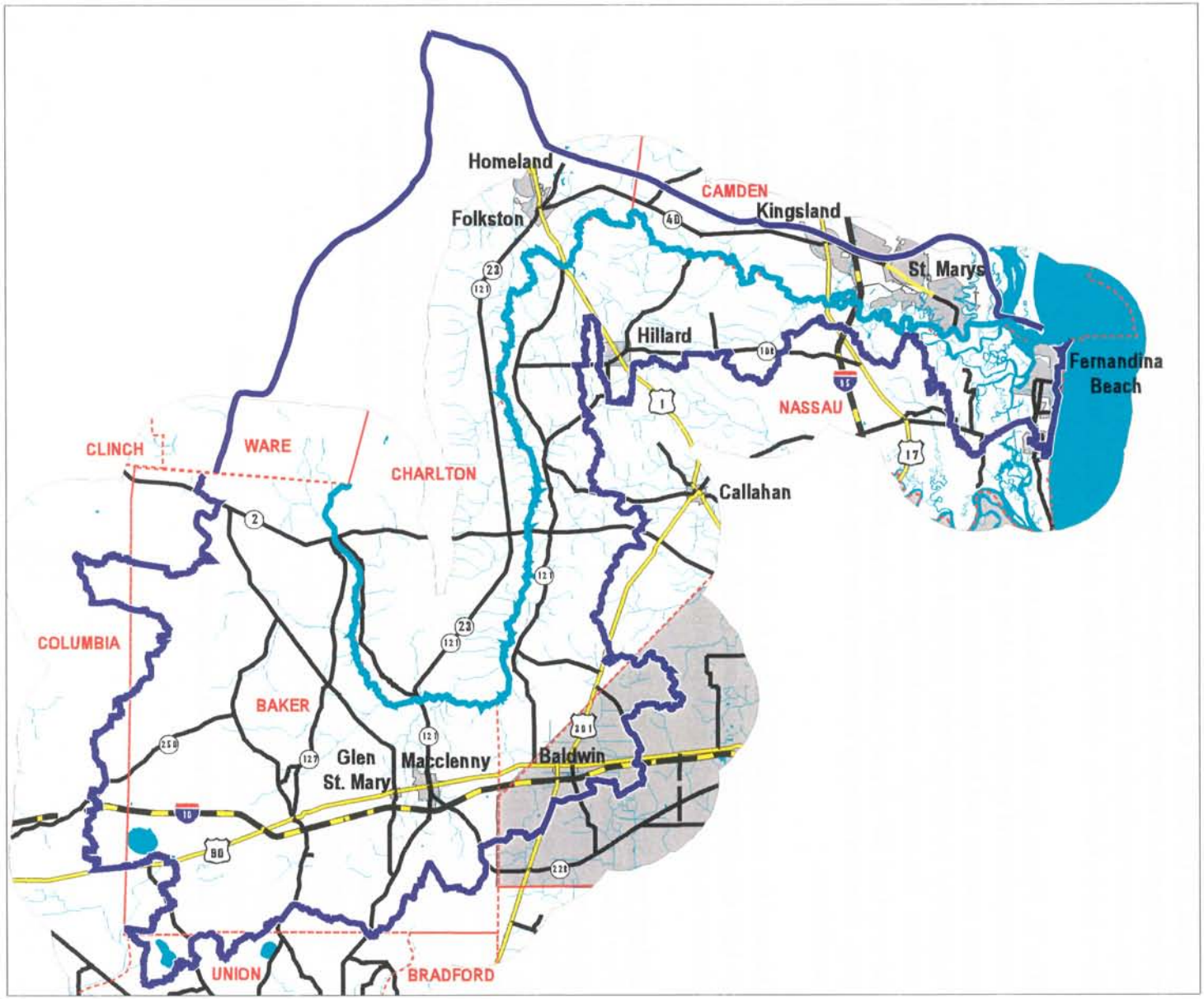
Most of the municipalities along the St. Marys River corridor do not have water resource or land development regulations. Ideally, policies governing river corridor planning should be consistently applied throughout a basin, regardless of geopolitical boundaries.

<u>Federal and State Rules and Regulations</u>

Five federal agencies (US Environmental Protection Agency, US Army Corp of Engineers, US Fish and Wildlife Service, National Marine Fisheries Service, and Federal Emergency and Management Agency) are responsible for the natural and water resources in the St. Marys River basin (see Appendix E: Table G.1). Three state agencies (FDEP, FFWCC, GDNR) and one regional agency (Florida's SJRWMD) have major responsibilities in regards to St. Marys River corridor management (See Appendix E: Tables G-2 through G-3). These federal and state agencies have a number of existing laws, policies, rules and regulations applicable to the natural and cultural resources of the basin. These include specific requirements covering the broad categories such as:

- wetland management;
- surface and ground water quality and use;
- species and ecosystem protection;
- archeological, historical, and cultural protection; and
- land use and growth management controls.

Figure G.1.1. Political Boundaries and Major Roads of the St. Marys River Basin



LEGEND:

- County Boundaries
- Surface Water Basin Boundaries
- Rivers and Streams
- Water Bodies
- Municipalities

Major Roads (USGS):

- Interstate
- US Highway
- State Road
- County Road

DATA SOURCES:

1. Surface Water Basins (FL) - St. Johns River Water Management District (1:24,000)
2. Surface Water Basins (GA) - U.S. Geological Survey (USGS) Hydrologic Units (1:250,000)
3. County Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
4. County Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
5. Municipal Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
6. Municipal Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
7. Rivers and Streams: USGS Digital Line Graphs (1:100,000)
8. Water Bodies: USGS Digital Line Graphs (1:100,000)
9. Roads: USGS Digital Line Graphs (1:24,000) edited for mapping purposes by Rich Doty of the Pandion Team

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For the St. Marys River Management Committee
August 22, 2000

These federal and state policies, rules, and regulations address protection of the resources of the St. Marys River. Differences in the permitting and approval processes exist between states. Many of these are well established in practice and have relatively consistent enforcement mechanisms. The 1993 KBN report, *A Wetland Management Strategy for the St. Marys River Basin,* provides a synopsis of some of the main regulations impacting wetlands, water, and land resources in the basin. One major inconsistency exists in the application of state endangered and threatened species protection acts. State-listed but non-federal-listed species are protected on both public and private lands in Florida and but only on public lands in Georgia.

The State of Georgia has enacted three levels of river management planning that include the River Basin Management Plans (prepared at the state level), the River Corridor Protection Plan (mandated by the state and prepared at the county level), and the Green Space Program Plans (mandated by the state and prepared at the county level). All have considerable overlap in content requirements and goals.

County Policies, Plans, and Ordinances

The policies and regulations governing local water resources and land use along the river are not consistent among governmental entities. As noted previously, some local governments (e.g., Charlton County in Georgia and Baker and Nassau counties in Florida) have not developed regulations to support their comprehensive plans, while Camden County in Georgia does have some river corridor regulations. The majority of the county plans and policies in both states defer to federal and state requirements. The municipalities along the St. Marys River corridor do not have water resource and land use regulations, and defer to county policies. A comparison of county and state shoreline development regulations is presented in Appendix E: Table G.4. Coordinated management of the St. Marys River is currently difficult because the regulations are not consistent between counties. Management will benefit in multiple ways from a single set of comprehensive policies and ordinances.

Growth Management

The Southeastern Atlantic coastal region is in an unprecedented period of growth and change. At present, one in seven Americans live in a county that abuts the eastern or southern coastline. Improved technology, greater wealth and better transportation are giving people more choices about where they live. More and more, they are choosing the Southeastern coast, with its allure of weather, scenery, and recreational amenities. In the 100 fastest growing Atlantic and Gulf coastal counties, the rate of growth has been 50% greater than the rate for the entire United States (USDOC, 2001). Urban planners predict that growth along the coast should be propelled for another 10 to 20 years by demographic, economic, and social trends.

Coordination of federal, state and local polices and regulations can provide a framework for growth management. While the direct impetus for growth is in the coastal counties (Camden, Georgia and Nassau, Florida), over time the interior counties (Charlton, Georgia and Baker, Florida) will experience an increase in land development as coastal property values become burdensome for workforce housing and the service industry (see Section F: Economic Development). The cumulative effects will be felt all along the river

corridor as access pressures increase, land development occurs on the river's edge, and sources of point and non-point pollution increase. Land uses will change as real estate values increase and forestry and farmland is converted to residential and commercial development. This has been the pattern of change along other coastal rivers and could be the future for the St. Marys. Failure to gain community consensus on the value of the natural assets in the St. Marys River basin will result in losses of natural resources and water quality as the pressures of new land development encroach on the region.

G.2 Accomplishments

Florida and Georgia have become leading states in the recognition of natural resources as valuable assets worthy of public protection. Each has made significant accomplishments in recent years in terms of watershed planning initiatives, designation of conservation areas, and public acquisition of ecologically sensitive lands. For the purposes of this report, several recent accomplishments will be highlighted:

- Formation of the St. Marys River Management Committee
- Adoption of Comprehensive Plans by counties in Florida and Georgia
- Use of Florida Conservation Overlays
- Enactment of the Georgia Rules for Environmental Planning Criteria
- Georgia's Community Green Space Program
- Development and Adoption of Conservation Easements and Land Funds, and
- Coordination of Florida Wetland Regulations

See Appendix E: Tables G.1 through G.4 for a comparison of regulatory programs.

Formation of the St. Marys River Management Committee

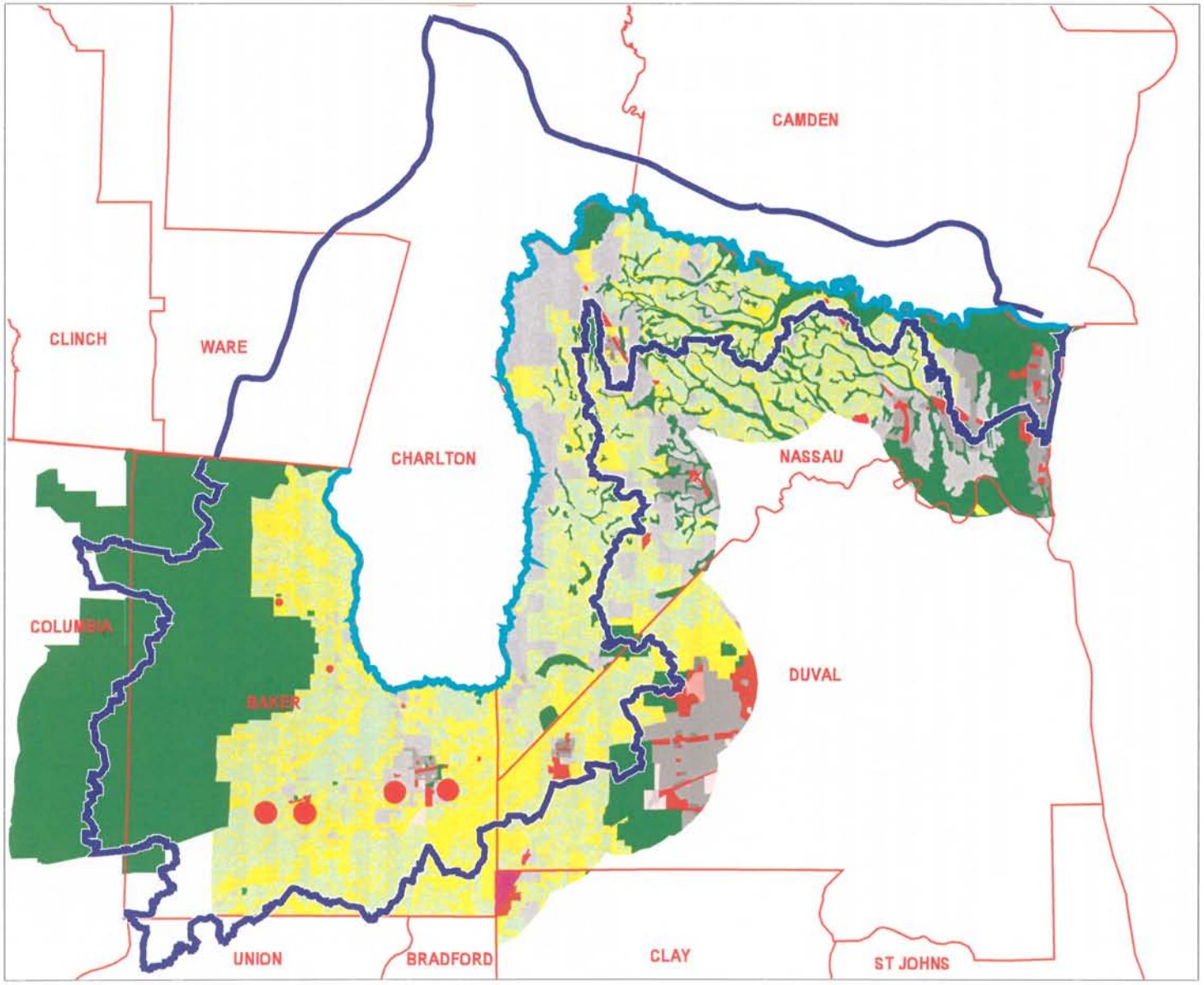
The formation of the St. Marys River Management Committee in 1991 constitutes one of the most significant accomplishments and steps toward long-term river protection and management. The committee's vision demonstrates an understanding of the value of natural resources and their role in preserving both a sustainable economy and a high quality of life, as well as the many reasons that make cross-boundary planning and management a useful approach. Some of the accomplishments of the Committee have been to

- Develop of a visioning process for the river;
- Provide a forum for public involvement on issues pertaining to the river;
- Sponsor river clean-up programs;
- Enhance access sites along the river;
- Communicate to the public about the St. Marys River (e.g., *POSM, River Guide*);
- Acquire the Boulogne Welcome Center as an education center and museum; and
- Develop this St. Marys River Management Plan.

Adoption of Comprehensive Plans by Counties in Florida and Georgia

All four major counties in the St. Marys River region have adopted comprehensive plans. However, some local governments (e.g., Charlton County in Georgia and Baker and Nassau counties in Florida) have not developed regulations to support their comprehensive plans, whereas, Camden County in Georgia does have some river corridor

Figure G.1.2. Generalized Future Land Use of Nassau and Baker Counties



LEGEND:

- County Boundaries
- Surface Water Basin Boundaries

Generalized Future Landuse (1996):

- High Density Residential (>5 DU/acre)
- Medium Residential (>=2 DU/acre and <=5 DU/acre)
- Low Residential (>= 1 DU/10acres and <2 DU/acre)
- Rural Residential (<1 DU/10acres)
- Low Density Commercial
- High Density Commercial
- Industrial
- Mining/Extractive
- General Agriculture
- Public Facilities/Institutional
- Conservation/Public Lands
- Recreation/Open Space
- Silviculture/Timber Production
- Water

DATA SOURCES:

1. Surface Water Basins (FL) - St. Johns River Water Management District (1:24,000)
2. Surface Water Basins (GA) - U.S. Geological Survey (USGS) Hydrologic Units (1:250,000)
3. County Boundaries (FL): US Census Bureau TIGER Line Files (1:100,000)
4. County Boundaries (GA): US Census Bureau TIGER Line Files (1:100,000)
5. Generalized Future Land Use, 1996 (FL only): St. Johns River Water Management District / East Central Florida Regional Planning Council (scale varies)
6. Data not available for Camden and Charlton Counties

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regulations. The majority of the county plans and policies in both states defer to federal and state requirements. A comparison of county and state shoreline development regulations is presented in Appendix E: Table G.4.

Use of Florida Conservation Overlays

Conservation overlays are a planning tool intended to provide more restrictive development requirements in designated areas with special ecological or historical significance. Nassau County incorporated Limited Development and Preservation overlays in the future land use element of its comprehensive plan. Privately owned conservation lands can be placed under the limited development overlays with development density and placement restrictions. Publicly owned conservation lands may be proposed for the conservation overlay with no expansion of existing development allowed.

Enactment of Georgia Rules for Environmental Planning Criteria

The Georgia Rules for Environmental Planning Criteria (Chapter 391-3-16) are part of the 'Minimum Planning Standards' developed by the Georgia Department of Community Affairs (GDCA) and Department of Natural Resources (GDNR) to be used as a minimum standards for local governments in the development of their comprehensive plans. These criteria cover environmentally sensitive lands including:

- 391-3-16-. 01 Criteria for Water Supply Watersheds
- 391-3-16-. 02 Criteria for Protection of Groundwater Recharge Areas
- 391-3-16-. 03 Criteria for Wetlands Protection
- 391-3-16-. 04 Criteria for River Corridor Protection

The introduction to the rules explains that they are not mandatory, but in order for a local government's comprehensive plan to meet Minimum Planning Standards, it must identify whether any of these environmentally sensitive lands exist within their jurisdiction and, if so, assess whether some or all of these minimum criteria should be implemented locally. The rule states that these criteria are "minimums" and suggests that local governments will likely go beyond them in the interest of protecting important natural resources. These minimum standards form the basis for comprehensive plan updates and a possible framework for portions of a model ordinance.

The water protection rules pertain to placement of common sources of hazardous wastes such as landfills, RCRA-permitted Treatment, Storage, and Disposal facilities, storage tanks, septic tanks and waste impoundments. The wetlands criteria are primarily focused on identification and mapping of wetlands, establishing minimum areas, and considering impacts to wetlands in future land use plans.

Georgia's Community Green Space Program

Georgia has initiated a statewide Community Green Space Program that is to be implemented at the local level by county and municipal governments. The overall goal is a minimum of 20% green space protected in developed areas. Counties with large populations or high growth rates may be required to participate; others are encouraged to

participate voluntarily. The program will be administered by GDNR and will be funded in part by a new Community Green Space Fund.

Funding is granted to counties that meet total population and/or population growth rate criteria. The criteria for 2000 are: 60,000 minimum population and/or a growth rate of 800+ persons per year since the last census. Counties that qualify are granted funds based on their pro rata share. In the year 2000, Camden County qualified for $150,000. As described below, the funds can be used for acquisition or to obtain conservation easements. Public access to Green Space lands is optional.

According to GDNR, counties in the program would be expected to fulfill the following requirements:

- Green Space Protection Plan – Develop and implement a green space protection plan.
- Find Non-State Funds – Locate as many sources of funding as feasible for the protection of green space, matching state funds from federal, local, and private sources.
- Develop Protection Measures – Protect green space by using local government powers and processes.
- Develop Metrics And Report To The State – Measure and report accomplishments to the responsible state agency.

The Green Space Plan is incorporated into the local comprehensive plan through amendment or revision and should be developed in coordination with all government units (including cities, school boards, water and sewer authorities, development authorities, fire marshals, and health departments). Cities can submit an independent plan if necessary. However, multi-jurisdictional cooperation and planning on a watershed level is encouraged.

The GDNR is designated as the appropriate state agency to administer the program. Recommended administrative functions for GDNR include the development of rules, guidelines, funding criteria, and the provision of financial, legal, and technical assistance for local land trusts and landowners in the development of conservation easements.

Growth of Conservation Easements as Voluntary Preservation and Development Tools

According to the Georgia Environmental Policy Institute (GEPI), landowners are using conservation easements for long-term protection of riverfront land, wildlife habitat, farmland, woods and creeks, productive forests, scenic vistas, historic sites, urban gardens, and other types of land and natural resources. The prime reason for establishing easements is the desire to protect the inherent and long-term value of the land. Conservation easements provide:

- Permanent land protection,
- Private ownership, management, and use of the land,
- Flexibility to fit the needs of the individual landowners, and
- Savings on income, estate, and property taxes.

GEPI defines a conservation easement as a voluntary legal agreement between a landowner and another party that restricts the development of a tract of land. If permanent, if held by a qualified easement holder, and if held for valid conservation purposes, the conservation easement is recognized by the U. S. Internal Revenue Service and the landowner may qualify for certain tax incentives. The IRS requirements for a conservation easement include:

- The agreement must be voluntary,
- The agreement must be legally binding,
- The agreement must be permanent,
- The easement must be held by a qualified easement holder (i.e., a government entity or a land trust),
- The easement must restrict development of the land (however, the landowner can specify the restrictions), and
- The easement must have a valid conservation purpose (for example, environmental protection, recreation, education, preservation of open space, or preservation of historic areas).

This is just a preliminary list of concepts to be considered. An incentive system might include a checklist and weighting scheme for local governments to evaluate development designs submitted for approval. Designs with higher scores might qualify for streamlined permit processes, tax incentives, access to government funds for green space, or wetland mitigation points.

Coordination of Florida Wetland Regulations

Since the 1993 KBN report, Florida has simplified wetland permitting within the state through a separation of wetland permitting requirements between the Florida Department of Environmental Protection (FDEP) and the water management districts (i.e., SJRWMD). Depending upon the type of dredge and fill project, either FDEP or SJRWMD is the lead state permitting authority. FDEP is responsible for reviewing the following types of permitting activities:

- Projects involving state owned submerged lands,
- Projects that need a waste treatment or management permit,
- Mining projects,
- Power plants and electrical transmission lines,
- Communication cables and lines,
- Natural gas or petroleum exploration, production, and distribution activities and facilities,
- Docking facilities and sea wall or coastal construction activities, and
- Navigational dredging and some other specific activities.

The local water management district is responsible for all other permitting activities, such as those that do not involve state owned submerged lands. Although a joint state and federal application is required, the U.S. Army Corps of Engineers, Jacksonville District still has its own wetland permitting responsibilities. By contrast, there has been no change in the wetland permitting responsibilities for the state of Georgia since 1993.

G.3 Strategies

Create a nonprofit watershed association

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Provides association to carry out public awareness, river education, outreach, publications, media, and land trust programs	✕	✕	Local action by SMRMC	Voluntary	Nonprofit association guided by SMRMC; Committee identifies funding for association and hires watershed administrative assistant.	Long Term

Hire cost-effective Committee administrative assistance

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★10	Enhance effectiveness and communication	✕	✕	Local action by SMRMC	Voluntary	Emphasize outsourcing	Short Term

To effectively administer a number of the recommendations in this plan, the Committee should consider two organizational issues: (1) the potential to create a nonprofit association that would enable broader funding and enhance achievement of the Committee education and outreach programs, and (2) the need for full time staff to assist the Committee in its responsibilities.

Nonprofit watershed associations are uncommon in the Southeast but have proliferated in areas of the country faced with competing demands for water and river recreational opportunities. Such an association could be organized and directed by a local steering committee that could be a subset of the Committee.

Evaluate each county's land use pattern as reflected in their Comprehensive Plans and encourage consistency with river protection, using Best Management Practices (BMPs) and similar measures

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★7	Provides for consistent land use decisions and protects corridor resources	✕		Local action by SMRMC subcommittee and local governments	Adoption is voluntary, mandatory if adopted	Monitoring by Committee	Long Term

Sponsor workshop(s) for county/state planning agencies to coordinate consistent river corridor planning

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Provides better river corridor planning and management	✖		Action by local governments, regional planning or development councils, and state agencies (i.e., SJRWMD)	Voluntary	Monitoring by watershed association in cooperation with government enforcement actions	Long Term

Promote bank-to-bank legislation to unify land use, recreation, and wildlife management laws

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★2	Provides for consistent land use decisions and protects river corridor resources	✖		Action by local governments	Adoption is voluntary, mandatory if adopted	Self monitoring by watershed association in cooperation with local and state governments	Short Term

Existing county zoning ordinances are designed for broad application throughout a county. There are few that are specifically designed for additional protection of lands directly adjacent to the St. Marys River. Some counties do not have zoning or land development regulations of any kind except for federal and state regulations.

There is considerable overlap in the content of the various plans currently required by federal, state, and local agencies. However, there is little coordination or consistency in development and revision of the plans and policies developed at this time. The following are a few of the planning initiatives that might benefit from a consistent basinwide effort:

- State and federal Basin Management Plans;
- Georgia's Green Space Program Plan and River Corridor Protection Plan;
- Florida Plans for Priority Acquisition and Areas of Conservation Interest;
- Florida Water Management District Water Supply and Minimum Flows and Levels Plans; and
- Regional Comprehensive Plans.

A single coordinated effort should be conducted to coordinate all land and water development related plans across jurisdictional boundaries. Adoption of consistent zoning and development regulations for the St. Marys River corridor by all four counties will require considerable coordination and cooperation by the counties and hearty encouragement from St. Marys River citizens and associations.

Design shoreline development guidelines/incentives, e.g., river corridor vegetative buffers and setbacks

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
★5	Guides development and construction and provides incentives to protect resources	✕		Local action by SMRMC subcommittee and local governments	Adoption is voluntary; Participation in incentives is voluntary if adopted	Subcommittee/local government develops design guidelines and incentives for new development; Local governments adopt rules; Builders are rewarded for meeting environmental standards.	Long Term

A program that encourages developers to incorporate natural resources into their designs might include a combination of incentives, voluntary adoption, and/or ordinances from a list of standard considerations such as:

- Development layouts that follow, rather than alter, natural stream and water courses;
- Extensive use of vegetated buffers for stormwater and erosion control;
- Planning for fire-safe communities and for use of prescribed fire for managed vegetative buffers;
- Use of native vegetation that requires minimal irrigation and provides wildlife habitat;
- Limits on impervious surface percentages;
- Limits on the amount of lawn areas allowed;
- Requirements for leaving strips of existing vegetation in between lots;
- Suggested use of permeable concrete and permeable pavements;
- Incorporation of small and large wetlands in stormwater and drainage designs; and
- Looking at the parcel on the regional scale and designing undisturbed vegetated links to regional corridors.

Establish a St. Marys River library/information clearinghouse/database for use by Committee, citizens, local government agencies

STRATEGY PRIORITY	BENEFITS	ST. MARYS		IMPLEMENTATION		FOLLOW-UP ACTION	TYPE OF EFFORT
		RIVER	BASIN	RESPONSIBILITY	PROCESS		
	Provides citizens, associations, and governments with access to comprehensive information for sharing, learning, and reporting functions.	X	X	Local action by SMRMC	Voluntary	Self-monitoring by watershed association in cooperation with various data sources	Long Term

Data collected from mapping, reporting, land use, and resource inventory for the St. Marys River basin are held in various formats at various county, state, and federal agency locations. Assembly, integration, and interpretation of the data are hindered by the lack of a single planning and mapping database. Advantages of a single data clearinghouse include:

- All stakeholders have the same information,
- A consistent set of information can be updated on a regular basis,
- Cumulative changes can be tracked and cumulative effects modeled,
- Future land use designations and possible effects can be projected,
- Consistent plans and reports can be prepared across both states and counties, and
- Conservation lands and easements can be tracked and comprehensive data will be available for state and federal funding of conservation-related projects.

Existing data sets should be linked in a single database/GIS system. This central clearinghouse would support greater efficiency in the development of coordinated plans, could be used for keeping up with cumulative changes as development occurs, and would be a valuable planning tool for public and private interests at all levels.

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VII. Appendices

APPENDIX A: Full Text of Guiding Principles

St. Marys River Guiding Principles
Goals, Purposes, Significance, And Planning Parameters

Guiding Principles for the St. Marys River Planning Effort

The overall vision of the St. Marys River Management Committee is: *To protect the scenic beauty and ecological health of the St. Marys River watershed for the benefit of present and future generations. This can be accomplished through coordinated local action that involves the full spectrum of the basin's citizens and through increased public education efforts that foster greater awareness, appreciation, and stewardship of the basin's resources.* Guiding principles for the St. Marys River Management effort include:

- Plan for the St. Marys River Management Committee and local government leaders to manage the river over the next ten to fifteen years.
- Strongly emphasize maintaining the serenity, solitude, and pristine beauty of the river.
- Plan for the watershed in both Georgia and Florida, with primary focus on the river corridor and secondary focus on the river basin.
- Involve and inform local government leaders, the St. Marys River Management Committee, and the public.
- Use cost-effective, creative, scientifically sound strategies to meet goals.
- Use incentives and voluntary cooperation to accomplish conservation goals.
- Emphasize public education and awareness.
- Develop consistent river protection standards across boundaries and emphasize intergovernmental coordination.

Goals for the St. Marys River Management Plan

One major purpose of the St. Marys River Management Committee is to *create a comprehensive plan for the St. Marys River basin and tributaries, based on good science, which protects water quality and quantity and involves everybody from both states.* Specific goals of the St. Marys River Management Plan are to:

1. Maintain and improve the water quality of the St. Marys River.

2. Provide for flood protection through nonstructural, natural functions of the St. Marys River.

3. Protect natural systems of the St. Marys River basin, for example, maintain minimum flows and levels and protect biodiversity.

4. Provide for recreational and public uses of the St. Marys River, which are compatible with the previous goals and consistent across county and state boundaries.

5. Provide for local-local, local-state, and local-state-federal intergovernmental coordination and relations in the management of the St. Marys River.

Purposes of the St. Marys River Management Committee

The St. Marys River Management Committee is a group of citizen volunteers that seeks local management of the river and the development of a management plan to guide the river's future. The St. Marys River Management Committee was established by a 1991 interlocal agreement as an alternative to the river's inclusion in the federal Wild and Scenic Rivers program. The Committee consists of representatives from the four counties that comprise 86% of the St. Marys River basin: Charlton and Camden counties of Georgia, and Baker and Nassau counties of Florida. The specific purposes of the St. Marys River Management Committee, as developed through the visioning process, are to:

1. Produce a comprehensive management plan for the St. Marys River basin and tributaries, based on good science, which protects water quality and quantity and involves everybody from both states.

2. Establish a strategy for land acquisition and providing tax incentives for large landowners. This strategy would involve establishing a locally defined, restricted-use river buffer, identifying a list of landowners along the river, and asking landowners about incentives needed. The committee will continue to work with private landowners and The Nature Conservancy to encourage conservation easements along the river, as a voluntary, non-regulatory way to protect the river for future generations.

3. Inform and increase the participation, communication, and cooperation of county commissioners, state officials, and other leaders in the protection of the St. Marys River through regular outreach, information sessions, visits, and tours.

4. Encourage education and increase public awareness through a welcome center/museum, St. Marys River informational video, school programs, Patrons of the St. Marys (POSM) newsletter, river guide/brochure for the St. Marys River, annual adoption of a river landing for restoration and cleanup, annual St. Marys River Celebration and river cleanup, and monthly public meetings of the Committee.

5. Provide bank-to-bank legislation to ensure consistent rules in both Georgia and Florida regarding public use and wildlife management.

Significance of the St. Marys River
The St. Marys River is significant because:

1. The St. Marys River is a relatively pristine and remote blackwater stream that forms the border between southeast Georgia and northeast Florida, with a basin of 1610 square miles (60% in Florida, 40% in Georgia), and flowing 130 miles from the Okefenokee Swamp to the Atlantic Ocean.

2. The St. Marys River has excellent water quality with a lack of urban development and few pollution discharge points (Macclenny, Fernandina Beach, Kingsland, St. Marys, and Folkston wastewater treatment plants and three pulp mills in the estuary). Over 85% of the basin is covered in forests and silvicultural lands.

3. The St. Marys River supports extensive fresh water wetlands and tidal marsh systems and feeds and connects the Cumberland Sound and Amelia River estuarine systems.

4. By its drainage, the St. Marys River supports the growth of timber, which is the predominant economic activity of the basin.

5. Several sections of the middle and lower St. Marys River basin provide important recharge areas for surficial aquifers and the Floridan Aquifer.

6. The St. Marys River provides a continuous water and land corridor from the Okefenokee Swamp National Wildlife Refuge, Osceola National Forest, and Pinhook Swamp area (TNC), through the Ralph E. Simmons Memorial State Forest, and large private tracts and private preserves (e.g., White Oak Plantation), to the Cumberland Island National Seashore, Fort Clinch State Aquatic Preserve (FL), and Atlantic Ocean.

7. The St. Marys River basin provides exceptional habitat for a diversity and abundance of native wildlife. The St. Marys River basin provides critical habitat for a number of endangered, threatened, or rare plants and animals, including the Florida black bear, Atlantic sturgeon, Sherman's fox squirrel, Red-Cockaded Woodpecker, flatwoods salamander, eastern indigo snake, and gopher tortoise. The basin also provides valuable foraging, roosting, and nesting habitat for a variety of wading birds. The basin also provides commercial recreational fisheries.

8. Native Americans, early Spaniards, pirates, and European-Americans have used the St. Marys River basin as a hunting ground, settlement area, transportation route, and recreational zone. The early history of the St. Marys River basin is undocumented.

9. The St. Marys River is considered to be one of the most beautiful and unique streams in north Florida/south Georgia, with outstanding natural habitat areas and unparalleled recreational resources. There is great potential for the expansion of tourism based on the St. Marys River resource, limited only by resource protection needs.

10. The St. Marys River provides educational opportunities for local communities and visitors alike.

Planning Parameters for the St. Marys River

The St. Marys River Management Plan will be developed within the following parameters:

1. Interlocal Agreement creating the St. Marys River Management Committee, December 6, 1993, between Baker, Nassau, Charlton, and Camden counties, based on the Inter-governmental Cooperation Act (FL) and the Constitution of the State of Georgia.

2. All applicable federal, state, regional, and local policies, laws, and regulations, including Rivers and Harbors Act (US); Clean Water Act (US); Endangered Species Act (US); Warren S. Henderson Wetlands Protection Act (FL); Management and Storage of Surface Waters (FL); Outstanding Florida Waters; Coastal Marshlands Protection Act (GA); Endangered Wildlife Act (GA); Mountain and River Corridor Act (GA); water quality and water use rules (GA, FL), and land use control/growth management regulations (FL, GA).

3. Other background guidance and programs, including the Wetland Management Strategy for the St. Marys River Basin (SJRWMD, 1993); the five-year Land Acquisition and Management Plan (SJRWMD, 1998); the Watershed Protection Approach to River Basin Management Planning (GA); and the Natural Areas Inventory of the St. Marys River, Georgia-Florida (TNC, 1988).

APPENDIX B: Community Meeting Results from 2000

St. Marys River Management Plan County Commissioner Workshop
White Oak Plantation, Yulee, FL
April 27, 2000

Note: Meeting participants were asked to provide comments on several topics (listed below, in uppercase font) relating to the St. Marys River. The participants' responses are listed below each respective topic area.

WORDS OF WISDOM FOR THE PLANNING PROCESS

- Leaving out the Boards of Education
- Educate kids and public about importance of river and planning process
- People need to know the river is fragile
- Focus on functions of this river and how to educate about this
- Tell people what could happen if we don't plan ahead
- Economic benefits to be had from clean ecotourism
- Coordination between states on "bank-to-bank" river regulations
- Think about saltwater intrusion and its effects on people and industry
- Consider potential effects of increased use (tourism, recreation)
- Dichotomy of conflicting uses of river (jet skis, etc.)
- How big or small are we going to be?
- Zoning as a management tool
- Where are revenues coming from? Economic benefits should pay for management.
- Ecological preservation
- Balance of preservation and economic uses
- Growth management
- General public access to the river – some is blocked by private land; some feeling that state parks are also limiting free public access.
- Should plan designate access points? Look at the big picture.
- Baker County has only one access point – developments, clubs, etc. are cutting off access. Need to encourage access to meet tourism goals.
- Plan needs to identify areas where acquisition or easements are needed (private, state, federal); could address access problems too
- Dr. Stuart Stevens, GDNR Coastal Resources Division, resource person for the plan
- Lack of cross-border communication
- Need a specific cross-border entity or coordination mechanism for effective river management and enforcement (river management "authority"?). It needs to have regulatory strength or ability or "teeth." St. Marys River Management Committee is advisory only.
- Plan should suggest the format for this cross-border entity
- Tap into GA and FL river basin programs to protect water quality
- Coordinate uniform "bank-to-bank" rules for housing, septic, and well setbacks. Look at setbacks and recommend uniform standards (e.g., drainfields should run away from river). Use planning and zoning boards working together.

- Chicken farms?
- River access next to bridges
- Arrive at standards that all four counties can adopt. Create model ordinances/legislation, not vague statements.
- Address/assess existing uses, grandfathered uses
- Need all counties to ratify plan
- Public awareness of new regulations, septic setbacks, etc.
- Clean water is the most important resource to protect

St. Marys River Management Plan Community Workshop
Cumberland National Bank, St. Marys, GA
June 27, 2000

VALUES OF THE ST. MARYS

- Maintain water quality
- Define water quality (shell fish harvesting in estuary?)
- Improve water quality and know what it is (specific measures)
- Protection from effects of development
- Keep access open
- Preserve ecosystem
- Keep the St. Marys a place for people to reconnect with nature
- Quiet and scenic beauty
- I've grown up around it and I want my kids to also
- Preservation of natural beauty with safeguards against strictly economic development
- St. Marys should be a Class II river (goal)
- Scenic beauty
- Valuable resource: recreation, native species (wildlife, vegetation)
- Ecotourism
- Blackwater river system

THREATS TO THE RIVER

- Overdevelopment
- Pollution (and trash)
- Overuse/illegal use (e.g., PWCs [personal water craft])
- Destruction of wildlife habitats
- Sewage, septic tank effluent
- Farm runoff, pesticides polluting the river
- Idealism of proponents of protection
- Fear and ignorance of those opposed to protection
- Erosion of river bank due to excessive boating speeds
- People, trash, etc.
- Lack of enforcement, laws....
- Major/large developments
- DNR permitting process/employees

- Lack of law enforcement
- Concerns regarding personal water craft, noise
- Careless, intentional discarding of objects into the river
- Jet skis
- Uncontrolled access for recreational use = overuse
- Enforce boat laws – Traders Hill
- Jet skis – no
- Federal phobia
- Marina construction
- Trailers in the floodplain
- High-speed watercraft
- Identify top five threats (i.e., farm runoff, sewage, industrial waste/pollution, development....) and develop action plans for improvement and/or threat reduction within those areas.
- Hog farms...other domestic livestock and fowl
- Trash in the marshes
- Sewage in river – Spanish Creek dump off
- Apathy of citizens

ACTIONS NEEDED

- Find ways to keep local landowners involved in the plan
- Audit of adherence to forestry BMPs [Best Management Practices]
- Set and enforce building setbacks from river
- Clear obstacles (e.g., railroad bridge at St. George) to reduce flooding
- Ways to enforce boating regulations ("No Wake" signs along the most populated areas or at landing sites)
- Ban jet skis
- "Neighborhood Watch" to help enforce boating regulations
- Legislation (incentives, voluntary cooperation may not do it – too valuable a resource to leave to optional care)
- Coordination between GA and FL authorities to set TMDLs [total maximum daily loads of pollutants]
- More water samplers on GA side
- River clean-up in March: more sites on GA side
- Establish "blue belt" – greenbelt benefits for landowners, protection of water front, 500 feet from bank of river
- Hire "river minders" (police) like on Hudson
- Provide more trash bins at all boat ramps and pick up trash on a regular basis
- Limit development through zoning and "smart growth"
- Monitor COE [Army Corps of Engineers] permits
- Enforce current laws for (a) trash and (b) boat use (PWCs)
- Formalized campsites to turn length of river into greenway type boat/paddle path
- Limit development

- Develop programs to involve schools in monitoring water quality, trends in plants and wildlife, trash, and also recreation
- Purchase riverfront property to preserve habitats
- Monitor septic tank influence on water quality
- More education about river
- Move on to a sanctuary status
- More extensive, better-organized river cleanups
- More education to riverfront landowners – effects of pesticides, pollution, runoff, etc.
- Acquisition of a river corridor wetland buffer via conservation easements or purchase of land (perhaps 300 feet)
- Bank-to-bank legislation – all counties with same rules/regulations
- Develop priority list for acquisitions along the river
- Use incentives to keep banks green (e.g., a river-facing greenbelt, tax reductions, annual public rewards/recognition)
- Set standards for what is built on the river (e.g., all docks should be similar in material/style)
- Identify the root causes of pollution and trash in the river and their sources. Then establish plans across the 4-county area to stop the causes, remove the sources (chemicals, cans, sewage, etc.)
- Build a view shed
- The annual river cleanup needs to be better organized so that the river is actually cleaned up and not just the river access sites. Access sites need dumpsters and regular cleanup.
- Funding!
- Ban all livestock from being closer than ½ mile from the river bank
- Catalogue flora/fauna on/near river
- Produce guide of flora/fauna – include threatened and endangered species

NEW ISSUES

- Survey of users and types of use (#s too) on the St. Marys

ORGANIZATIONS NEEDED TO HELP

- Ecotourism providers (canoe liveries, kayak outfitters, outdoor/environmental education providers)
- Grade-school kids
- Monied benefactors
- Local, state governments
- Organize water sampling groups in Camden and Charlton counties
- Fishermen (Bass Masters and other sport fishing associations), boaters, and other regular users of the river (canoe clubs, etc.)
- Sierra Clubs and Audubon Clubs
- Marine Science club at CCHS and other local high school environmental students
- King's Bay Submarine Base
- Jail inmates or minimum security inmates from prisons

- Involvement of young people, students from middle and high schools, to clean up and develop ongoing interest in preservation and protection
- Girl Scouts/Boy Scouts

PLANNING PROCEDURES
- Baseline current state of the river (water quality, etc. for all areas) – measures over time for each area, trends
- Set 5 or 10 year goals for improvement in the measures
- Establish annual improvement objectives for areas
- Establish annual plans that will achieve objectives (short-term) and goals (long-term)
- Organizations (county, SJRWMD, etc.) need to be funded annually to be able to implement plan
- Issue, publish annual report of progress against objectives and goals
- Establish cross-county work or planning groups to develop the annual plans (i.e., Recreational Use Plan) and to share best practices
- Make sure the message of the plan gets out to the public
- Involve community
- Realize that what's best for the river may not be the popular choice
- Establish accountability, publish results
- Define (1) What you are doing, (2) Where you will do it, (3) When will you do it

St. Marys River Management Plan Community Workshop
Baker County Extension Office, Macclenny, FL
June 29, 2000

VALUES OF THE ST. MARYS
- Wildlife
- Recreation
- Educational field trips
- Cleanliness
- Fishing
- Canoeing
- Camping
- Historical values
- Absolutely beautiful
- Marketable timber land
- Freedom to hunt, fish, swim
- Use of river
- Teaching my children to fish and swim
- Water sports
- Pristine and unadulterated
- God's natural beauty. Amen!

THREATS TO THE RIVER

- Land erosion
- Timber harvest
- Home development
- Removal of hardwood trees
- New sewage systems in flood plain
- Businesses too close to river
- Too much water used for irrigation
- Chemical runoff, chemical dumping
- The government and their committees
- Trash everywhere, Trash south of boat ramp – Steel Bridge Road
- Development
- Water quality degradation
- Too many boat ramps (trash)
- Possibility of water being piped out to Duval County
- The Committee threatens that which I hold dear concerning this river. It's where I teach my children to fish, swim, and hold close to them the wildlife surrounding it.

ACTIONS NEEDED

- More public access
- Public boat entrances
- Removal of trash at public access (put it in cans, not river)
- Absolutely none! Leave it like it is! Stop!
- Fines for polluters (trash and chemical)
- Establish limits for development that protect property owners' right to develop and public's right to enjoy the river as is. This will be quite a plan.
- Sales tax vs. property tax for clean-up costs
- Better enforcement of trespassing laws

NEW ISSUES

- Low-level dams
- Property rights
- No federal acquisition
- Public access
- Point of navigation under Coast Guard jurisdiction
- Increased ecotourism
- Deadhead logging issues
- Landowners to maintain control of their properties

ORGANIZATIONS NEEDED TO HELP

- King's Bay Submarine Base
- Local government organizations
- Chambers of Commerce

PLANNING PROCESS

- More public notice of these meetings via paper, fliers, etc.
- More public awareness of what this committee intends to do

APPENDIX C: Community Meeting Results from 2001

Folkston Workshop Results (community comments), January 23, 2001

Note: a "+" symbol indicates a positive response
a "—" symbol indicates a negative response

River Basin Management & Intergovernmental Coordination:

Bank to bank legislation to coordinate wildlife regulations (+)

Bank to bank legislation, county and state (+)

Bank to bank legislation: inclusive to development, setbacks, boat laws, safety (+)

Common bank to bank legislation on septic setbacks and spacing; different laws regarding ownership of the river bottom (+) *DUPLICATE*

Consistency in land use plan between GA and FL (+)

Evaluation of each county's land use patterns with comments on how to limit impacts on the river (+)

Evaluation of land use patterns (+)

Hire cost effective communities (+)

Promote bank to bank legislation to unify laws (+)

Provide for interagency coordination and management (+)

River basin management and inter-government coordination (+)

Rules being different on either side (+)

Set up non-profit association that can pursue grants, act as facilitator (+)

Shoreline guide (+)

Shoreline guidelines (+)

Protection of Ground Water/Surface Water Quality:

Better water quality, regulated testing from both sides of the river (+)

Consistent septic laws on both sides to protect the resource (+)

Continued surface water monitoring (+)

Continuing and having a uniform setback of septic and other types of chemicals that get into the groundwater (+)

Need to coordinate public agencies, especially regarding surface water monitoring and sharing data (+)

Protection of groundwater quality (+)

River water quality: testing important, uniform testing with results published in layman's terms in layman's papers (+)

Septic setbacks standardize between states (+)

Septic system setbacks: at least 100 feet to protect groundwater (+)

Septic tank issue and protection of groundwater (+)

Septic tank setback lines (+)

septic tanks must not drain into river (+)

Water quality analysis (+)

Common bank to bank legislation on septic setbacks and spacing: different laws regarding ownership of the river bottom (+) *DUPLICATE*

Protection of Floodplain Functions:

Floodplain protection: FEMA insurance program, habitat for wildlife, duck populations (+)

Floodplain protection: whatever happens on the land use affects the river (+)

Floodplain protection; floodplain is not yet screwed up (+)

Development of model shoreline ordinance, existing floodplain storage (+)

Development of guidelines and incentives for property owners on the floodplain (+)

Flood insurance (+)

Protection of Natural Systems

Encourage stewardship of private lands (+)

Land acquisition issues: property owners want to remain property owners (-)

Protection of Recreational Opportunities:

Better boating facilities: ramps, docks, bathrooms (+)

Corridor recreation plan: no wakes passing houses and docks (+)

Create a recreation plan (+)

Public Outreach /Education:

Annual cleanup (+)

Annual public meeting to bring everybody up to date and what we should be doing in the future (+)

Clearer laws to protect landowner from lawsuits by trespassers (+)

Continue annual river cleanup (+)

Education for kids in schools (+)

Education of tourists, even the ecotourists, for appreciation for private property rights: river guide showing areas where camping is permissible (+)

Education: total education in a public manner (+)

Education; setting up another program is expensive; outreach to kids might be more effective (-)

Encourage stewardship to landowners (+)

Environmental education programs and library issues: have programs that might house the information as a clearinghouse, don't need separate facilities (-)

Environmental education: reinventing the wheel (-)

Establishing library for kids (+)

Establishment of a center or library: reinventing the wheel (-)

Hosting river conference periodically (-)

Landowners' rights regarding regulations and private lands (+)

Public education: GA has three great EE programs, directly applicable (+)

Sponsor workshops for county and state (+)

Stewardship programs for kids in schools, mascots, library and learning center (+)

Libraries: information already available (-)

Planning for Economic Development:

Creating a corridor recreation plan to enhance business has a negative connotation, seems to promote development (-)

Designate a subcommittee to explore incentives for business development (-)

Misc.:

level of protection not very high (+)

Private land has an important resource value (-)

Yulee Workshop Results (community comments), January 16, 2001

River Basin Management & Intergovernmental Coordination:

Design shoreline guidelines (+)

Design shoreline initiatives (+)

Encourage consistency of river protection (+)

Enforce no power loading on boat ramps (+)

Expanding unification of wildlife laws and regulations; expand to other issues (+)

Foster inter-government cooperation (-)

Hire administrator or coordinator, more resources or partnerships, outsource (+)

Hire staff to devote more time to problems and know whom to call (+)

Importance of boating safety, licensing, enforcement of drinking (+)

Regulation consistent (+)

Protection of Ground Water/Surface Water Quality:

Consistent septic setbacks, water quality, education about the groundwater, drinking water (+)

Establish consistency of septic system guidelines (+)

Incentives for modification of grandfathered septic tanks (+)

Monitor TMDL (+)

Protection of groundwater quality (+)

Protection of groundwater quality, septic and runoff (+)

TMDL monitoring—government is already monitoring, but not enough. Committee could also sample, using grad students (+)

Water quality (+)

Water quality—number one issue to address, but not addressed enough in the plan (+)

Protection of Floodplain Functions:

Encourage local governments to participate in flood insurance program (+)

Participation in national flood insurance, educational value (+)

Protection of floodplain, wildlife habitat (+)

Flood insurance education (+) DUPLICATE

Protection of Natural Systems:

Natural systems—protecting the land surrounding and feeding into the river, greenway or blueway (+)

Protection of Recreational Opportunities:

Recreation plan, conflicts over use, make available for more people (+)

Maintain skiing and boating spaces (+)

Public Outreach /Education:

Groundwater quality education (+)

Flood insurance education (+) *DUPLICATE*

Continue and expand public education programs (+)

Educational component important for schools, media (for adults right now) (+)

Education-newsletter, make available to more people, link to web pages; Make cleanups more educational (+)

Host biennial river conference (-)

Host river conference (-)

Increase river cleanups (+)

More citizen enforcement (+)

Museum, public awareness, neighborhoods (+)

Visitor center—when you have other problems, this is not that important (-)

Planning for Economic Development:

economics (+)

Incentive for business—don't want to draw businesses to edge of river (-)

Economic development of the river might negate preserving the river (-)

Any economic development in rural areas needs to preserve the river (-)

Not receptive of incentives (-)

Establish committee to look at incentives for business (-)

APPENDIX D: St. Marys River Basin Plan 2002, *Executive Summary*, Georgia Department of Natural Resources

Saint Marys River Basin Management Plan 2002

Georgia Department of Natural Resources
Environmental Protection Division

Georgia River Basin Management Planning Vision, Mission, and Goals

What is the VISION for the Georgia RBMP Approach?

Clean water to drink, clean water for aquatic life, and clean water for recreation, in adequate amounts to support all these uses in all river basins in the state of Georgia.

What is the RBMP MISSION?

To develop and implement a river basin planning program to protect, enhance, and restore the waters of the State of Georgia, that will provide for effective monitoring, allocation, use, regulation, and management of water resources.

[Established January 1994 by a joint basin advisory committee workgroup.]

What are the GOALS to Guide RBMP?

1) To meet or exceed local, state, and federal laws, rules, and regulations. And be consistent with other applicable plans.

2) To identify existing and future water quality issues, emphasizing nonpoint sources of pollution.

3) To propose water quality improvement practices encouraging local involvement to reduce pollution, and monitor and protect water quality.

4) To involve all interested citizens and appropriate organizations in plan development and implementation.

5) To coordinate with other river plans and regional planning.

6) To facilitate local, state, and federal activities to monitor and protect water quality.

7) To identify existing and potential water availability problems and to coordinate development of alternatives.

8) To provide for education of the general public on matters involving the environment and ecological concerns specific to each river basin.

9) To provide for improving aquatic habitat and exploring the feasibility of re-establishing native species of fish.

10) To provide for restoring and protecting wildlife habitat.

11) To provide for recreational benefits.

12) To identify and protect flood prone areas within each river basin, and encourage local and state compliance with federal flood plain management guidelines.

[Established January 1994 by a joint basin advisory committee workgroup.]

Executive Summary

This document presents Georgia's management plan for the St. Marys River basin, which is being produced as a part of Georgia's River Basin Management Planning (RBMP) approach. The Georgia Environmental Protection Division (EPD) has developed this plan in cooperation with several other agency partners including the USDA Natural Resources Conservation Commission, Georgia Soil and Water Conservation Commission, Georgia Forestry Commission, U.S. Geological Survey, Georgia Geological Survey, and Georgia Wildlife Resources Division. The RBMP approach provides the framework for identifying, assessing, and prioritizing water resources issues, developing management strategies, and providing opportunities for targeted, cooperative actions to reduce pollution, enhance aquatic habitat, and provide a dependable water supply.

Purpose of the Basin Plan

The purpose of this plan is to provide relevant information on the characteristics of the St. Marys River basin, describe the status of water quality and quantity in the St. Marys River basin, identify present and future water resource demands, present and facilitate the implementation of water quality protection efforts, and enhance stakeholder understanding and involvement in basin planning.

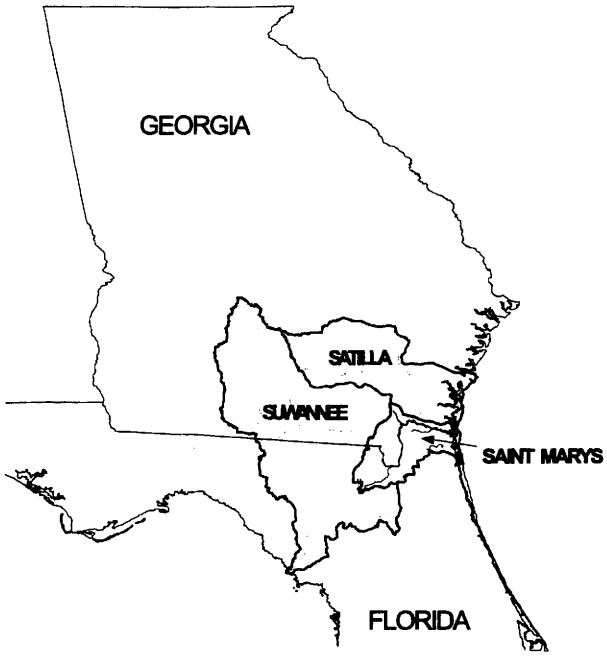
This St. Marys River Basin Management Plan includes strategies to address a number of different basinwide objectives. These include:

- Protecting water quality in lakes, rivers, streams, estuaries, and coastal waters through attainment of water quality standards and support for designated uses;
- Providing adequate, high quality water supply for municipal, agricultural, industrial, environmental, and other human activities;
- Preserving habitat suitable for the support of healthy aquatic and riparian ecosystems;
- Protecting human health and welfare through prevention of water-borne disease; minimization of risk from contaminated fish tissue, and reduction of risks from flooding; and
- Ensuring opportunities for economic growth, development, and recreation in the region

Achieving these objectives is the responsibility of a variety of state and federal agencies, local governments, business, industry, and individual citizens. Coordination among these many partners can be challenging, and impacts of actions in one locale by one partner on conditions elsewhere in the basin are not always understood or considered. River Basin Management Planning is an attempt to bring together stakeholders in the basin to increase coordination and to provide a mechanism for communication and

consideration of actions on a broad scale to support water resource objectives for the entire basin. RBMP provides the framework to begin to understand the consequences of local decisions on basinwide water resources.

This river basin plan will serve as the road map for managing the water resources in the St. Marys River basin over the next five years. It contains useful information on the health of the St. Marys River basin and recommended strategies to protect the basin now and into the future.



St. Marys River Basin Characteristics

The St. Marys River basin is located in the southeastern part of Georgia, occupying an area of 1,300 square miles with approximately 765 square miles of the basin in Georgia. The basin lies within the Coastal Plain physiographic province, which extends throughout the southeastern United States. The St. Marys River drains into the Atlantic Ocean.

Water Resources

The surface water resources of the basin are divided into one major watershed or hydrologic unit: the St. Marys River.

Biological Resources

The basin encompasses a part of one major land resource area (Atlantic Coast Flatwoods) which provides a number of different ecosystem types. These ecosystems provide habitat for diverse species of aquatic and terrestrial wildlife. Several of the species are currently threatened or endangered.

Population and Land Use Characteristics

The major population centers in the St. Marys River basin include the Cities of Folkston, Kingsland, and St. Marys. The population is expected to increase at an average growth rate through 2050.

More than 62 percent of the basin is commercial forests and forestry-related activities account for a major part of the basin's economy. Agriculture is a relatively limited land use activity supporting a variety of animal operations and commodity production.

Local Governments and Planning Authorities

The local governments in the basin consist of counties and incorporated municipalities. The St. Marys basin includes part or all of 3 Georgia counties. These counties are members of two different Regional Development Centers.

Water Quantity Conditions

Surface water supplies in the basin include water in rivers, and ponds. Groundwater is the primary water source in the St. Marys River basin. In the Coastal Plain Province, aquifer yields are higher and groundwater withdrawals make up the majority of the total water budget. Georgia's Drinking Water Program oversees 7 active and permitted public water systems in the St. Marys River basin.

The primary demands for water supply in the basin include municipal and industrial use, agricultural use, and recreation. The demand for drinking water is expected to remain stable in the near future due to average population growth rates. Agricultural water demand in the St. Marys River basin is minimal. Future agricultural water demand is expected to increase within the basin.

Water Quality Conditions

The major environmental stressors that impair or threaten water quality in the St. Marys River basin include traditional chemical stressors, such as oxygen demanding substances and bacterial contamination, as well as less traditional stressors, such as stream channel modifications and alteration of physical habitat.

Significant potential sources of environmental stressors in the basin include point source discharges such as municipal and industrial wastewater, and storm sewers; and nonpoint sources that result from diffuse runoff from urban and rural land uses. Based on EPD's 1998-1999 water quality assessment, urban runoff and rural nonpoint sources are now the major sources of failure to support designated uses of water bodies in the St. Marys basin.

Point Sources

Point sources are defined as the permitted discharges of treated wastewater to river and tributaries that are regulated under the National Pollutant Discharge Elimination System (NPDES). These permits are issued by EPD for wastewater discharges and storm water discharges.

Municipal discharges. There is currently 1 permitted major municipal wastewater discharge with a flow greater than 1 MGD in the St. Marys River basin. There are also 6 minor public discharges. EPD monitors compliance of these permits and takes appropriate enforcement action for violations. As of the 1998-1999 water quality assessment, no stream segments were identified in which municipal discharges contributed to a failure to support designated uses.

Industrial discharges. There are relatively few industrial wastewater dischargers in the basin including 1 major facility. EPD identified no stream segments where permitted industrial discharges contributed to a failure to support designated uses.

Permitted storm water discharges. Urban storm water runoff in the St. Marys basin has been identified as a source of water quality impairment. Urban runoff which is collected by storm sewers is now subject to NPDES permitting and control.

Nonpoint Sources

Nonpoint sources of pollution include a variety of pollutants that are carried across the ground with rainwater and are deposited in water bodies. The 1998-1999 water quality assessment results for the St. Marys basin indicate that urban and rural nonpoint sources contribute significantly to failure to support designated uses of water bodies. The major categories of nonpoint source pollution in the basin include the following:

- Urban, industrial, and residential sources, which may contribute storm water runoff, unauthorized discharges, oxygen-demanding waste, oil and grease, nutrients, metals, bacteria, and sediments.
- Agricultural sources, which may contribute nutrients from animal wastes and fertilizers, sediment, herbicides/pesticides, and bacteria and pathogens.
- Forestry activities, which may contribute sediments and herbicides/pesticides.

Support of Designated Uses

Under Georgia regulations, designated uses and associated water quality standards provide goals for water quality protection. EPD assessed the streams and estuaries in the St. Marys basin and reported the results in *the Georgia 2000 305(b)/303(d) list.* This assessment indicated 5 out of 9 (102 miles) partially supported uses, while 4 out of 9 (20 miles) did not support designated uses.

Key Environmental Stressors

The major threats to water quality in the St. Marys River basin are summarized below.

Dissolved Oxygen. The 1998-1999 water quality assessments indicated that listings due to violations of water quality standards for dissolved oxygen were one of the most commonly listed causes of failure to support designated uses. Dissolved oxygen concentrations contributed to lack of full support on 58 miles, constituting 7 stream segments. Oxygen consuming substances may be discharged to streams from point and nonpoint sources. In general, nonpoint sources are the most significant sources at this time. Severe drought conditions during the 1998-2000 period significantly impacted the southeast region of the state, including the St. Marys River basin. According to EPD's "1998-2000 Georgia Drought Report," the rainfall shortage in this region amounted to almost 23 inches. The drought conditions likely contributed to the low dissolved oxygen concentrations documented in the St. Marys River and its tributaries. In addition, it should be noted that dissolved oxygen concentrations are naturally low in parts of the St. Marys River basin.

Fecal coliform bacteria. The 1998-1999 water quality assessments indicate that fecal coliform bacteria concentrations contributed to lack of full support on 8 miles, constituting 2 stream segments. Fecal coliform bacteria may arise from point and nonpoint sources, such as wastewater treatment plants, agricultural nonpoint sources, leaking septic systems, and storm water runoff. As point sources have been brought under control in the basin, nonpoint sources have become increasingly important as potential sources of fecal coliform bacteria.

Nutrient loading. Nutrient loading is potentially an important issue in the St. Marys River basin. Excess nutrient loads can promote undesirable growth of algae and degradation of water quality. An estuary receives unassimulated nutrients from the

watershed upstream. The major sources of nutrient loading in the St. Marys basin are agricultural runoff, urban runoff, storm water, and wastewater treatment facilities.

Fish tissue contamination. Fish consumption guidelines for individual fish species are in effect for 3 stream segments (83 miles). The guidelines for stream segments are the result of mercury. Most of the mercury load is believed to be of atmospheric or natural origin.

Flow and Temperature Modification. Stream flow and temperature affect the kinds of organisms able to survive in the water body. Stream flow and temperature also affect how much oxygen is available to the organisms. The potential threats to temperature regime in streams of the St. Marys basin are warming by small impoundments, increases in paved surface area, and the removal of trees which provide shade along stream banks.

Sediment Loading and Habitat Degradation. A healthy aquatic ecosystem requires a healthy physical habitat. One major cause of disturbance to stream habitats is erosion and sedimentation. As sediment is carried into the stream, it can change the stream bottom, and may smother sensitive organisms. Turbidity associated with sediment loading also may potentially impair recreational and drinking water uses. Sediment loading is of greatest concern in developing areas and major transportation corridors. The rural areas of the basin are of lesser concern with the exception of rural unpaved road systems, areas where cultivated cropland exceeds 20 percent of the total land cover, and areas in which foresters are not following appropriate management practices.

Strategies for Water Supply

At this time, water quantity appears to be adequate for all uses within the Georgia portion of the St. Marys basin, and there are no major new water supply projects proposed. There are, however, several water quantity concerns in the St. Marys basin which are of significance to decision makers.

Strategies for Water Quality

Water quality in the St. Marys River basin is generally good at this time, although problems remain to be addressed and proactive planning is needed to protect water quality into the future. Many actions have already been taken to protect water quality. Programs implemented by federal, state, and local governments, farmers, foresters, and other individuals have greatly helped to protect and improve water quality in the basin over the past twenty years.

The primary source of pollution that continues to affect waters of the St. Marys River basin results from nonpoint sources. These problems result from the cumulative effect of activities of many individual landowners or managers. Population is growing every year, increasing the potential risks from nonpoint source pollution. Growth is essential to the economic health of the St. Marys River basin, yet growth without proper land use planning and implementation of best management practices to protect streams and rivers can create harmful impacts on the environment.

Because there are many small sources of nonpoint loading spread throughout the watershed, nonpoint sources of pollution cannot effectively be controlled by state agency permitting and enforcement, even where regulatory authority exists. Rather, control of nonpoint loading will require the cooperative efforts of many partners, including state and federal agencies, individual landowners, agricultural and forestry interests, local county and municipal governments, and Regional Development Centers. A combination of

regulatory and voluntary land management practices will be necessary to maintain and improve the water quality of rivers, streams, and lakes in the St. Marys River basin.

Key Actions by EPD. The Georgia EPD Water Protection Branch has responsibility for establishing water quality standards, monitoring water quality, river basin planning, water quality modeling, permitting and enforcement of point source NPDES permits, and developing Total Maximum Daily Loads (TMDLs) where ongoing actions are not sufficient to achieve water quality standards. Much of this work is regulatory. EPD is also one of several agencies responsible for facilitating, planning, and educating the public about management of nonpoint source pollution. Nonpoint source programs implemented by Georgia and by other states across the nation are voluntary in nature. The Georgia EPD Water Resources Branch regulates the use of Georgia's surface and ground water resources for municipal and agricultural uses, which includes source water assessment and protection activities in compliance with the Safe Drinking Water Act.

Actions being taken by EPD at the state level to address water quality problems in the St. Marys River basin include the following:

- **Watershed Assessments and Watershed Protection Implementation Plans.** When local governments propose to expand an existing wastewater facility, or propose a new facility, EPD requires a comprehensive watershed assessment and development of a watershed protection implementation plan.
- **Total Maximum Daily Loads (TMDLs).** Where water quality sampling has documented standards violations and ongoing actions are not sufficient to achieve water quality standard within a two year period, a TMDL will be established for a specific pollutant on the specific stream segment in accordance with EPA guidance. TMDLs were established for 303(d) listed waters in the St. Marys River basin in 2001. Implementation plans will be developed in 2002.
- **Source Water Protection.** Most of the public water supply in the St. Marys basin is drawn from groundwater. To provide for the protection of public water supplies, Georgia EPD is developing a Source Water Assessment Program in alignment with the 1996 amendments to the Safe Drinking Water Act and corresponding EPA guidelines.
- **Fish Consumption Guidelines.** EPD and the Wildlife Resources Division work to protect public health by testing fish tissue and issuing fish consumption guidelines as needed, indicating the recommended rates of consumption of fish from specific waters. The guidelines are based on conservative assumptions and provide the public with factual information for use in making rational decisions regarding fish consumption.

Key Actions by Resource Management Agencies. Nonpoint source pollution from agriculture and forestry activities in Georgia is managed and controlled with a statewide non-regulatory approach. This approach is based on cooperative partnerships with various agencies and a variety of programs. Agriculture in the St. Marys River basin is a mixture of livestock and poultry operations and commodity production. Key partners for controlling agricultural nonpoint source pollution are the Soil and Water Conservation Districts, Georgia Soil and Water Conservation Commission, and the USDA Natural Resources Conservation Service. These partners promote the use of environmentally-sound Best Management Practices (BMPs) through education, demonstration projects, and financial assistance.

Forestry is a major part of the economy in the St. Marys basin and commercial forest lands represent over 62 percent of the total basin land area. The Georgia Forestry Commission (GFC) is the lead agency for controlling silvicultural nonpoint source

pollution. The GFC develops forestry practice guidelines, encourages BMP implementation, conducts education, investigates and mediates complaints involving forestry operations, and conducts BMP compliance surveys.

Key Actions by Local Governments. Addressing water quality problems resulting from nonpoint source pollution will primarily depend on actions taken at the local level. Particularly for nonpoint sources associated with urban and residential development, it is only at the local level that regulatory authority exists for zoning and land use planning, control of erosion and sedimentation from construction activities, and regulation of septic systems.

Local governments are increasingly focusing on water resource issues. In many cases, the existence of high quality water has not been recognized and managed as an economic resource by local governments. That situation is now changing due to a variety of factors, including increased public awareness, high levels of population growth in many areas resulting in a need for comprehensive planning, recognition that high quality water supplies are limited, and new state-level actions and requirements. The latter include:

- Requirements for Watershed Assessments and Watershed Protection Implementation Plans when permits for expanded or new municipal wastewater discharges are requested;
- Development of Source Water Protection Plans to protect public drinking water supplies;
- Requirements for local comprehensive planning, including protection of natural and water resources, as promulgated by the Georgia Department of Community Affairs.

In sum, it is the responsibility of local governments to implement planning for future development which takes into account management and protection of the water quality of rivers, streams, and lakes within their jurisdiction. One of the most important actions that local governments should take to ensure recognition of local needs while protecting water resources is to participate in the basin planning process, either directly or through Regional Development Centers.

Continuing RBMP in the St. Marys River Basin

This basin plan represents one step in managing the water resources in the St. Marys basin. EPD, its resource management agency partners, local governments, and basin stakeholders will need to work together to implement the plan in the coming months and years. Additionally, the basin planning cycle provides the opportunity to update management priorities and strategies every five years. The St. Marys River basin team and local advisory committee will both be reorganized to initiate the next iteration of the cycle. Agencies and organizations with technical expertise, available resources, and potential implementation responsibilities are encouraged to become part of the basin team. Other stakeholders can stay involved through working with the local advisory committee, and participating in locally initiated watershed planning and management activities. The next scheduled update of the St. Marys River basin plan is planned for 2007.

APPENDIX E: Tables for Section G. Government Policy

Table G.1: Federal Laws and Policies that Apply to the St. Marys River

Table G.2: State of Florida Laws and Policies that Apply to the St. Marys River

Table G.3: State of Georgia Laws and Policies that Apply to the St. Marys River

Table G.4: Comparison of County and State Shoreline Development Regulations

Table G.1 Federal Laws and Policies that Apply to the St. Marys River

Federal Policy/Regulations	Entity	Resource Protected	Type of Protection	Permit or Approval
Rivers and Harbors Act 1899 Sections 9 and 10	USACE	Water and Wetlands	Prohibits unauthorized construction in or over navigable waters of the U. S.	Yes
Clean Water Act Section 404 (33 CRF Parts 320-330)	USACE	Water and Wetlands	Controls discharge of dredged or fill material into waters of the U. S.	Yes USACE
Fish and Wildlife Coordination Act of 1956	USACE	Water and Wetlands	Requires USACE to coordinate permit applications with state and federal fish and wildlife agencies.	No
Clean Water Act (40CFR Parts 122,123,124) NPDES Permit Wastewater Stormwater	EPA	Water	Permit requirements for wastewater treatment plants Directs States to develop Total Maximum Daily Loads(TMDLs).	Yes
Coastal Zone Management Act P. L. 92-583; 16 U. S. C. 1451*et seq*	OCRM/ NOAA	Coastal Zone & Estuaries	Establishes policy, programs, grants, funds, rules, and regulations regarding effective management, beneficial use, protection, and development of the coastal zone.	No
Estuarine Protection Act P. L. 90-454; 16 U. S. C. 1221-1226	OCRM	Estuarine Resources	Calls for general study and inventory of estuaries and their associated resources. Presents recommendations for commercial and industrial development considerations. Calls for state consideration of protection and restoration of estuaries in state comprehensive planning.	No
Archeological and Historical Preservation and Protections Acts PL 74-292; 16 U. S. C. 461*et seq* PL 93-291; 16 U. S. C. 469 PL 89-665; 16 U. S. C. 470 PL 96-95 ; 16 U. S. C. 470aa-11	Dept. of Interior	Archeological and Historic	Establishes policy, programs, rules, and regulations regarding the preservation and protection of archeological and historic resources. Establishes civil and criminal penalties for unlawful excavation and removal.	Yes for excavation and removal
Endangered Species Act of 1973 PL93-205; 16 U. S. C. 1531 *et seq*	FWS/ NMFS	Species & Habitat	Protects all marine and non-marine endangered and threatened species and the critical habitat on which they depend.	Yes
Executive Order of 1979, Creation of Federal Emergency Management Agency	FEMA	Flood Plain	Provides flood insurance and provides guidance on building codes and floodplain management.	No
National Environmental Protection Act (NEPA) PL 91-190; 42 U. S. C. 4321-4370d	CEQ	Land and Water	Requires federal agencies to prepare reports including an Environmental Impact Statement (EIS) for all major federal actions significantly affecting the quality of the human environment. An Environmental Assessment (EA) may be performed first with recommendations for either Findings of No Significant Impact (FONSI) or that an EIS is necessary.	Yes

Table G.2. State of Florida Laws and Policies that Apply to the St. Marys River

State of Florida Policy/Regulations	Entity	Resource Protected	Type of Protection	Permit Approval
Warren S. Henderson Wetlands Protection Act (403. 92-. 938,FS)	FDEP & SJRWMD	Water and Wetlands	Regulates activities in wetlands considered to be waters of the state. Note – Both Florida and USACE have permitting jurisdiction; Florida's rules require a hydraulic connection to a surface water, USCAE does not.	FDEP or SJRWMD
Management and Storage of Surface Waters (Ch. 40C-4, Ch. 40C-40, and Ch. 40C-41, F. A. C. , Sec 403, FS)	SJRWMD	Water and Wetlands	Establishes standards and permit requirements for the management, consumptive use, and storage of surface waters including stormwaters and impoundments.	SJRWMD
Outstanding Florida Waters (Rule 17-302. 700, F. A. C.)	FDEP	Water and Wetlands	Establishes a process for designating Outstanding Florida Waters (OFW) worthy of special protection with more protective standards.	FDEP
Surface Water Quality Standards (Rule 17-302. 400, F. A. C.)	FDEP	Water	Establishes surface water classifications for specific uses and corresponding water quality standards.	FDEP
Local Government Comprehensive Planning and Land Development Act (Ch. 163, F. S. ; Ch. 9J-6, 9J-24, F. A. C.	FDCA	All	Directs local governments to adopt comprehensive plans and land development regulations; outlines rules and minimum criteria; and outlines elements to be included in plans. Ch. 380, F. S., establishes criteria for Developments of Regional Impact (DRI).	DCA, RPCs, Local Government
RPC Policy Goal 8. 3. 3	NE Florida RPC	Wetlands	Significant wetlands should be protected through a coordinated management plan by Federal, State, regional and local governments.	DCA, RPCs, Local Government
RPC Policy Goal 10	NE Florida RPC	All Systems	Natural Systems and Recreational Land – Florida shall protect, acquire, and restore natural habitats and systems.	DCA, RPCs, Local Government

Table G.3. State of Georgia Laws and Policies that Apply to the St. Marys River

State of Georgia Policy/Regulations	Entity	Resource Protected	Type of Protection	Permit Approval
Coastal Marshlands Protection Act, 1970 (GA Code 12-5-280 *et seq.*)	GDNR	Water and Wetlands	Establishes permit requirements for alterations to coastal marshland in addition to federal water and wetland regulations. (applies to salt marshes in Camden County)	Yes GDNR
River Basin Planning Act O. C. G. A. 12-5-520 to 525	GDNR	River Basin	Directs the development of River Basin Management Plans for listed rivers; provides for contents of plans; for appointment and duties of local advisory committees; for provisions for issuing permits; and for the application of funds.	Yes
River Corridor and Mountain Protection Act, 1991 391-3-16-. 04	GDNR	Water and Wetlands	Authorizes Ga. Dept. of Natural Resources to set minimum planning standards and procedures for protection of river corridors; includes rivers (perennial watercourse with min. avg. flow of 400cfs). Requires a 100-horizontal foot buffer of natural vegetation on both sides of a river; minimum 2-acre lot size for single-family dwellings within the buffer; no septic drainfields within the buffer; construction must meet Erosion and Sediment Act requirements, and forestry or agriculture activities must meet Clean Water Act standards.	No
Rules for Certification of Environmentally Sensitive Property 391-3-18	GDNR	Six Defined Categories - Wetland & Land	Establishes procedures for certification of environmentally sensitive tracts of property for the purpose of ad valorum taxation. Defines six categories of environmentally sensitive property including: steep Mountain Slopes, Wetlands, Groundwater Recharge Areas, Undeveloped Barrier Islands, Habitats Containing Threatened Or Endangered Species, and River Corridors.	Certification
Rules for Environmental Planning Criteria391-3-16	GDNR	Five Defined Categories	Establishes minimum standards of planning criteria for five defined categories of land: Water Supply Watersheds, Ground Water Recharge Areas, Wetlands, River Corridors, and Mountains. Standards are intended for incorporation into regional and local comprehensive plans.	No
Endangered Wildlife Act of 1973 (GA Code 27-3-130 *et seq*)	GDNR	Species & Habitat	Identifies and protects listed species on public lands but does not cover private lands.	Yes GDNR
Rules and Regulations for Water Quality Control (391-3-6-. 03(4)	GA EPD	Water	Establishes surface water classifications for specific uses and corresponding water quality standards.	Yes
Erosion and Sedimentation Act, 1975	GDNR GA EPD	Water and Wetlands	EPD permit for an erosion and sedimentation control plan is required for all "land disturbing activities." EPD, county, or city may issue permits, and plans must be reviewed by the local Soil and Water Conservation District and/or the Soil Conservation Service. Several exempted activities include construction of a single-family residence, agricultural and forestry practices, and mining.	EPD, county or city and SWCD or SCS
1989 Comprehensive Planning Act O. C. G. A. 50-8-1 *et seq* & . 50-8-7	RDCs	Land and Shoreline	Georgia has 18 Regional Development Centers (RDCs) that coordinate municipal and county planning in conformance with the minimum standards set forth in the Comprehensive Planning Act.	

Table G.4. Comparison of State and County Shoreline Development Regulations						
	GEORGIA			FLORIDA		
Shoreline Development Regulations	**Environmental Protection Department (GDNR)**	**Camden**	**Charlton**	**Florida Department of Environmental Protection (DEP)**	**Nassau**	**Baker**
100-Year Floodplain Fill Restrictions						
Building Setbacks: From Shoreline From Wetland	Single family dwellings and septic tanks (but not drainfields) allowed within the 100' vegetated buffer	Rear setback from property line varies according to zoning: Ag/Forestry: 50' Ag/ Residential: 30' Single Fam. Res: 20' Multi-Family Res: 15'				Septic tanks must be 75' from riverbank or water's edge
Natural Vegetated Buffers: From Shoreline From Wetland	100' natural vegetation buffer on both sides of river				50'buffer of native vegetation	50'buffer of native vegetation
Shoreline Clearing w/o a Permit: Across Width of Lot Toward Water Body				Lesser of 50'or 50% of width, by hand only To reach open water		
Exotic/Invasive Plant Removal				Remove 100% without permit, but must re-vegetate lesser of 50' or 50% of lot width		
Lake Muck Removal (Specific to Lakes not rivers)				Can remove up to 3' within lake access corridor		
Septic Tank Setbacks Single Family	Single family septic tanks allowed within 100' buffer but not drainfields			75' (Dept. of Health and Rehabilitation Services)		75' from riverbank

Table G.4. Comparison of State and County Shoreline Development Regulations						
Shoreline Development Regulations	**GEORGIA**			**FLORIDA**		
	Environmental Protection Department (GDNR)	**Camden**	**Charlton**	**Florida Department of Environmental Protection (DEP)**	**Nassau**	**Baker**
Boat Ramps						
Dwelling Elevation Requirements	F. E. M. A. and National Flood Insurance Program: lowest floor of new structures must be elevated above base flood elevation	Above base flood elevation – ranges from 8-12 foot elevations for St. Marys River		F. E. M. A. and National Flood Insurance Program: lowest floor of new structures must be elevated above base flood elevation		Res:1' above 100yr Septic:1' above 10yr Roads: defer to state FEMA Elevation Certificate required.
Minimum Shoreline Lot Size	Minimum 2-acre lot per single family dwelling within the 100' vegetated buffer zone	Agric-Forestry: 5ac, 300'width Agric-Residential: 1. 5ac, 100'width Single Family Res: W/o central water/sewer: 30,000 s. f. W/ central water/sewer: 8,000 s. f. W/ either central water or sewer: 15,000 s. f.			Minimum lot size: 1 ac. With 100' min. width	Minimum lot : W/o central water/sewer: 7. 5ac with 200' min. width W/ central water/sewer: 0.5ac with 100' min. width
Maximum % of Impervious Surface Per Lot (Ground Cover and Structures)		Ag-Forestry: 20% Ag-Resident: 30% R-1,single fam: 30% R-2 ,multi-fam: 40%	Flood Damage Prevention Ordinance – addresses filling or diverting flows			0. 5ac: 30% 1-20ac: N/A

APPENDIX F: List of Preparers and Acknowledgements

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Susan Marynowski, M.S.	Pandion Systems, Inc.
Fay Baird, M.S.	Pandion Systems, Inc.
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Rich Doty, M.A.	GIS Associates, Inc.
Alan Hodges, Ph.D.	University of Florida, Food and Resource Economics Department

(Comments of Pandion Systems, Inc.) This management plan would not have been possible without the support and dedication of the St. Marys River Management Committee, and the particular involvement of George Varn, Jr. and Kraig McLane. Both were generous with their time and resources. The Nature Conservancy's Hallie Stevens, Will Murray, and Trish Gramajo were instrumental in providing oversight and guidance for the public meetings.

APPENDIX G: History of the St. Marys River Management Committee

The St. Marys River Management Committee (Committee) was organized in 1991 as a response to the U.S. Park Service studying the River for inclusion in the Wild and Scenic Program. Then-Charlton County Commissioner Jackie Carter was instrumental in organizing the Committee, which first met in October of 1991. With Ralph Simmons and Joe Hopkins as Co-Chairs, the Committee spent its first year hearing from the various entities having jurisdiction over the river. In 1992, the Park Service presented how the river would be managed if included in the Wild and Scenic Program. Following conversations with people from the Upper Delaware River, which is a Wild and Scenic River, and extensive discussion, the Committee resolved to oppose inclusion in the program. The galvanizing concern was lack of local control and possible property condemnation.

Having decided that long-term local involvement was necessary, the Committee decided a written operating agreement between the four counties was needed. The interlocal agreement, (see Appendix H) was signed in 1993. The Committee and Commissions were successful in opposing federal management; in 1995 the Park Service determined the river was eligible but not appropriate for inclusion due to local opposition.

George Varn and Dean Woehrle took over as Committee co-chairs in 1996.

The first river cleanup was held in 1997. Three hundred six volunteers collected 20,000 pounds of trash. The river cleanups have been repeated every year since. In 2003, the Committee held its seventh river cleanup, organized, as all have been, by Dean Woehrle. It involved 625 people and collected over 40,000pounds of trash.

Having decided that local and state management was preferable, it was incumbent upon the committee to provide such management. In 1995, a joint envisioning exercise was held between the Committee and the Friends of the St. Marys, who had supported the river being included in the Wild and Scenic Program. This effort generated a list of the resources and challenges of the river as viewed by a diverse group. It also represented the Committee's first efforts at outreach. Wanting to speed up the pace of adopting a management plan, the Committee established the Management Plan Task Force, headed up by George Varn and Kraig Mclane.

Initially, the Committee tried to write a joint management plan with the state of Georgia. Consequently, the current plan was outlined from Georgia's Watershed Planning Act. A second and larger envisioning exercise was held at Coleraine Plantation in 1998.

Finding that a joint plan with Georgia was unworkable, the Committee found contributors and hired a contractor, Pandion Systems of Gainesville, who completed their work in 2001. In the course of developing the plan, three workshops (two for the public and one for the four county commissions) were held to determine what should and should not be in the plan. An identical round of workshops were held to review the draft plan. The

four county commissions review meeting resulted in their January 2002 resolution endorsing the plan and the Committee's prioritization of strategies.

Mike Parris and Bob Merck held the Committee Chairman position in 1999 and 2000-01, respectively. The Committee's first newsletter was printed during Mike's chairmanship, and Bob was instrumental in getting the Committee's website established (stmarysriver.org).

All of 2002 and the first quarter of 2003 have been spent pursuing the management plan's top strategy, establishing consistent septic system setbacks. Under the leadership of Committee Chairman (and Camden County Commissioner) Ken Hase in 2002, Camden County established setbacks of 100 feet from the river, 2-acre minimum lot and 150-foot minimum river frontage. The Committee's Septic Setback Task Force, led by Dean Woehrle and Ken Hase, worked diligently in 2002 to convince Nassau County to increase their septic setback requirements from 25 feet from the river.

Chip Campbell assumed the Committee Chairman position in January of 2003. Under his and Dean Woehrle's leadership, on May 6, the Nassau County Board of Planning and Zoning forwarded a recommendation to the County Commission to increase their septic system setbacks to 100 feet, with one-acre minimum lots and 100-foot frontage.

APPENDIX H: Interlocal Agreement Creating the St. Marys River Management Committee

St. Marys River Management Committee

Post Office Box 251
Folkston,Georgia 31537
Telephone (912) 496-2549

INTERLOCAL AGREEMENT CREATING THE ST. MARYS RIVER MANAGEMENT COMMITTEE

THIS AGREEMENT, made and entered into this 6th day of December, 1993 by and between:

BAKER COUNTY

NASSAU COUNTY

CHARLTON COUNTY

CAMDEN COUNTY

WITNESSETH:

WHEREAS, the parties have entered into an Interlocal Agreement creating the St. Marys River Management Committee, and

WHEREAS, the Florida Intergovernmental Cooperation Act, Chapter 163, Florida Statutes, and the Constitution of the State of Georgia, 1983, Article 9, Section 3, Paragraph 1, Intergovernmental Contract (as amended 1992), permits local governmental units to make the most efficient use of their powers by enabling them to cooperate with other localities on a basis of mutual advantage and thereby to provide services and facilities in a manner and pursuant to forms of governmental organization that will accord best with geographic, economic, population, and other factors influencing the needs and development of local communities, and

WHEREAS, Camden County and Charlton County, Georgia and Nassau County and Baker County, Florida, have come together in an effort to ensure the long term viability of both the environmental and economic resources of the St. Marys River, now therefore

IN CONSIDERATION of the mutual promises, covenants and benefits to accrue from conduct of a comprehensive regional planning process, the member governments do hereby covenant and agree as follows:

1. Establishment of St. Marys River Management Committee. There is hereby established a multi-jurisdictional arrangement, herein referred to as the "St. Marys River Management Committee", among all parties hereto.

2. Purpose. The purpose of the St. Marys River Management Committee is to identify issues and recommend solutions related to the St. Marys River and its water quality. The St. Marys River Management Committee is to promote the protection and long term viability of both environmental and economic resources of the St. Marys River through a mechanism which retains local control, protects private property rights, and fosters cooperation of local individuals, governments, regional, State and federal agencies.

3. Duties and Responsibilities. The duties and responsibilities of the St. Marys River Management Committee are as follows:

To identify issues of concern related to water quality and recreational/commercial use of the St. Marys River.

Pursue the establishment of a coordinated and consistent code of regulations which, when implemented, will protect the water quality of the St. Marys River.

Development and implementation of a St. Marys River Management Plan for the protection of the water quality of the St. Marys River.

Promote the establishment of positive incentives for landowners to encourage land management options which provide the greatest benefits to the ecology of the St. Marys River.

Maintain a public monitoring and a violation reporting service to improve compliance and enforcement of existing laws and regulations to protect the River.

Review and provide recommendations on public policy issues such as local government comprehensive plans and land development

regulations, the expenditure of public resources, development proposals, and other state and federal actions which will impact the resources of the St. Marys River.

Serve as an advisory committee and provide coordination among various regulatory, land use planning, acquisition programs, and governmental entities to protect the resources of the St. Marys River.

To educate the public and provide information on the resources of the St. Marys River.

To provide a forum for affected landowners and county residents to provide input into decisions on river corridor protection while balancing the protection for private landowners.

4. Voting Membership. Each member County Commission (Nassau and Baker Counties, Florida and Camden and Charlton Counties, Georgia) shall appoint five (5) persons representing their respective county, to serve on the Committee. Of the five appointees from each County: one (1) will be a County Commissioner, two (2) will be landowners who own property on the St. Marys River in that county, or if the landowner is a company, corporation or other legal entity, then an appointed representative of that company, corporation, or legal entity, and two (2) will be residents of that county.

5. Terms of Service. Each voting Committee member shall be appointed by the County Commission and shall serve for a four (4) year term. Terms of Committee members shall be staggered so one half of committee terms will end every two years.

If the status of an appointed member changes during his/her term which makes that individual unqualified for their particular appointment, the County Commission of the affected member will appoint a replacement at the next available Commission meeting.

6. Non-Voting Members. One (1) representative from the St. Johns River Water Management District and one (1) representative from the Georgia Department of Natural Resources shall also serve on the Committee. The Agency representatives may serve as long as they represent the agency.

7. Funding. Each member County shall contribute an equal amount based on a budget approved by all member counties. The Committee and member Counties may pursue grants, donations, and other funding sources to support the implementation of and further the goals of the St. Marys River Management Committee.

8. Fiscal Agent. The parties hereto agree that Charlton County shall act as the fiscal agent for the Committee to receive and disburse all funds and be accountable for same. Any party employed to work for the Committee shall be an employee of Charlton County for all legal purposes. All funds contributed by

member counties and any funds otherwise received for the Committee shall be placed in a special account established for the Committee in an account named "Special Account of the Board of Commissioners of Charlton County for the St. Mary's River Management Committee." All funds drawn from this account must bear the signature of the chairman of the Board of Commissioners of Charlton County and of the chairman of the committee.

9. Term of Agreement. This Agreement shall remain in force and affect for a period of fifty (50) years; however, it is further provided that any party may, upon six (6) months written notice to all other parties, withdraw from the Committee and terminate all of its obligations set forth herein which had not already occurred prior to the sending of the withdrawal notice.

EXCEPT as hereby expressly amended, all terms and conditions of the Interlocal Agreement shall be and remain in full force and effect.

IN WITNESS WHEREOF, the parties have officially adopted and caused this Agreement to be executed and their signatures to be affixed by their respective Chairman or chief official as of the day and year first above written.

BAKER COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

Vice-Chairman

NASSAU COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

Chairman

CHARLTON COUNTY, GEORGIA
BY ITS BOARD OF
COUNTY COMMISSIONERS

Chairman

CAMDEN COUNTY, GEORGIA
BY ITS BOARD OF
COUNTY COMMISSIONERS

Chairman