

# *Regional Water Supply Plan*

## *Region V, Franklin and Gulf Counties*



**January 2007**



**Northwest Florida Water Management District**

*Water Resources Assessment 07-01*

# **NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT**

---

## **GOVERNING BOARD**

Wayne Bodie, Chair  
DeFuniak Springs

Joyce Estes, Vice Chair  
Eastpoint

Sharon T. Gaskin, Secretary/Treasurer  
Wewahitchka

Stephanie Bloyd  
Panama City Beach

George Roberts  
Panama City

Jerry Pate  
Pensacola

Peter Antonacci  
Tallahassee

Sharon Pinkerton  
Pensacola

Philip McMillan  
Blountstown

---

Douglas E. Barr, Executive Director

---

For additional information, write or call:

Northwest Florida Water Management District  
81 Water Management Drive  
Havana, Florida 32333  
(850) 539-5999; Suncom 771-2080  
FAX #: (850) 539-2777 (Main Bldg.)  
FAX #: (850) 539-2778 (SWIM Bldg.)

Northwest Florida Water Management District  
Regional Water Supply Plan  
Region V, Franklin and Gulf Counties

**TABLE OF CONTENTS**

Executive Summary .....	i
Introduction, Purpose, Goals, and Objectives.....	1
Demand Estimates and Projections .....	3
Resource Analyses .....	4
Issue Identification .....	6
Evaluation of Water Source Options .....	8
Water Resource Development Component .....	10
Water Supply Development Component.....	14
Summary and Recommendations.....	18
References.....	19

## **EXECUTIVE SUMMARY**

The Northwest Florida Water Management District identified the coastal area of Region V (Gulf and Franklin counties) as Areas of Special Concern (ASCs) for water supply in the District's 1998 Water Supply Assessment. The primary concern identified is the potential for saltwater intrusion in the upper portion of the Floridan Aquifer (the primary source of potable water) resulting from a decline in the potentiometric surface of the aquifer from groundwater withdrawals. The objective of the Region V Regional Water Supply Plan (RWSP) is to develop sustainable and cost effective water supplies that will meet the water supply needs of the region at least through 2025, without causing significant harm to water and related resources.

Recent state legislation, together with ongoing land development trends within the ASC, have prompted development of this RWSP for Region V. Creation of the Water Protection and Sustainability Program and associated trust fund within chapters 373 and 403, Florida Statutes (F.S.) have established development of alternative water supplies as a state priority and have provided resources and criteria for District funding assistance for priority alternative water supply development (AWSDD) projects.

The primary alternative water supply option identified for Franklin County is development of an inland groundwater source to withdraw fresh groundwater from the Floridan Aquifer and serve coastal areas. In Gulf County the preferred alternative is surface water from the Gulf County Fresh Water Supply Canal, formerly permitted for 28 Mgal/d for industrial self-supply. Although other sources such as demineralization of surface or ground water may be possible, these do not serve to protect existing water resources and are considered cost prohibitive. Water conservation and the use of reclaimed water (reuse) are also encouraged as options to reduce the long-term demand for potable-quality water throughout the region. The preferred alternative sources for water supply identified are based on water quality, cost, feasibility, and protection of existing water resources.

Responsibilities for water supply are statutorily defined for the District, local governments, and utilities. Water Resource Development is largely the District's responsibility and includes a regional perspective and oversight responsibilities. Water Supply Development is the purview of local governments and water supply utilities and includes infrastructure construction and facility operations for distributing water to end users. Specific projects identified in this RWSP under each of these areas of responsibility are:

### **Water Resource Development Projects**

- Hydrologic and Water Quality Data Collection, Monitoring, and Analysis
- Regional Water Supply Coordination, Source Protection, and Engineering and Technical Assistance
- Water Reuse and Conservation Assistance
- RWSP Implementation

#### Water Supply Development Assistance Projects

- Inland Groundwater Source Development and Water Supply Source Protection
- Alternative Surface Water Treatment and Transport Facility Development
- Utility Interconnects and Infrastructure Improvements
- Reclaimed Water Use

The implementation of water resource and water supply development strategies will be evaluated and reported on as necessary through the Water Resource Development Work Plan (WRDWP) annual reporting requirements of section 373.036(7), F.S. Funding plans for alternative water supply development activities will also be incorporated in the WRDWP and the Consolidated Annual Report required by section 373.036(7)(b), F.S.

Funding sources for plan implementation include the Water Protection and Sustainability Trust Fund, District general revenue funds, Florida Forever capital improvements funding, the Water Management Lands Trust Fund, legislative grants and appropriations, state and federal grant and loan programs, local government and utility revenues, and funding from other water use entities.

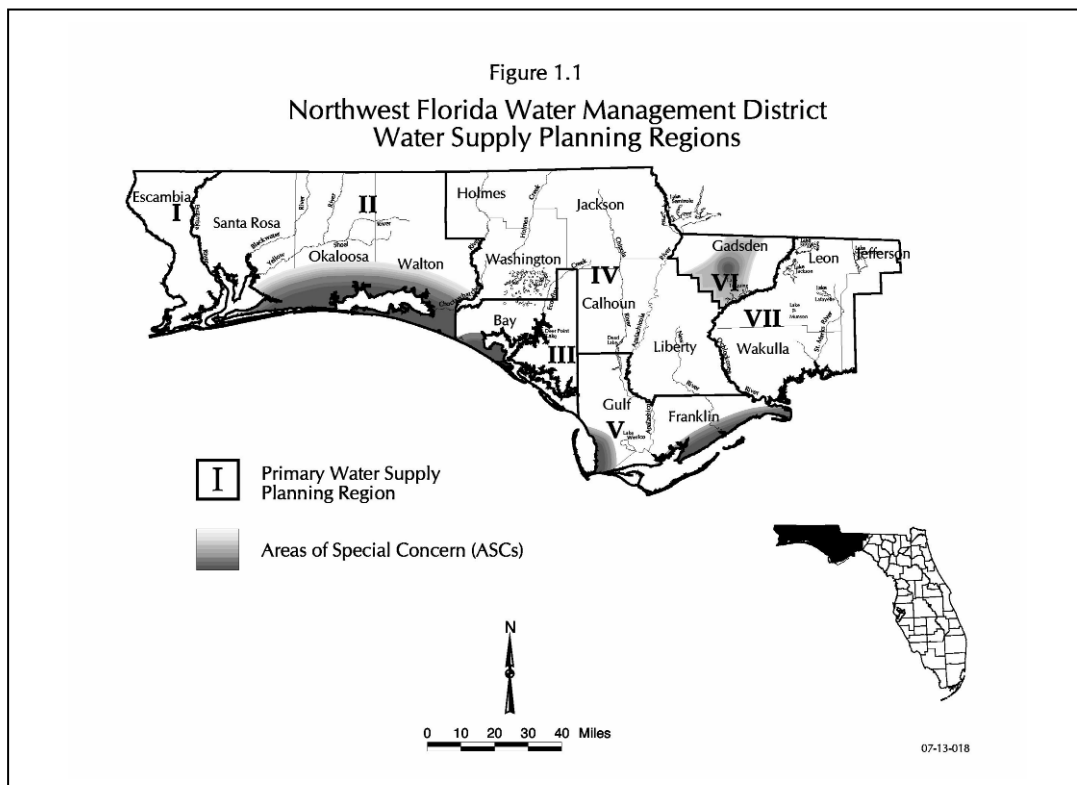
Current (2005) public water supply demand in Region V is estimated at 5.85 million gallons per day (Mgal/d). Demand for 2025 is projected to increase by 1.2 Mgal/d to 7.05 Mgal/d. The Water Supply Development component identifies 9 Mgal/d currently under development. Section 373.0361(2)(a)2, F.S., requires that the total capacity of the plan's projects must exceed the projected demands. Thus, it is expected that this plan's implementation will exceed the 2025 demand for Region V.

## 1.0 Introduction

### 1.1 Purpose

The purpose of this Regional Water Supply Plan (RWSP) is to identify solutions to water supply issues in coastal Region V and to facilitate multi-jurisdictional, cooperative solutions.

Coastal Gulf and Franklin counties are identified as Areas of Special Concern (ASCs) for water supply in the District's updated 2005 District Water Management Plan (Figure 1.1). Although the region was not originally designated for regional water supply planning under ch. 373.036, F.S., in the District's 1998 Water Supply Assessment (WSA), the report recognizes that coastal public supply wells are subject to saltwater intrusion. In June, 2006 the Governing Board determined that a RWSP was needed for Region V.



#### 1.1.1 Plan goal and objectives

The goal of this plan is to secure the future water needs of Region V. The objectives of this plan are:

- a. Identify suitable inland groundwater source locations as an alternative water supply.
- b. Coordinate demand projections among utilities and water suppliers in the ASC.
- c. Design and construct regional water supply production wells and provide for the protection of the newly developed groundwater sources.
- d. Complete development of the Gulf County Fresh Water Supply Canal and associated facilities as an alternative water supply source.

- e. Plan for continued operation and maintenance of regional water supply facilities.
- f. Secure funding for alternative water supply development assistance and water resource development projects.

### 1.1.2 Planning process

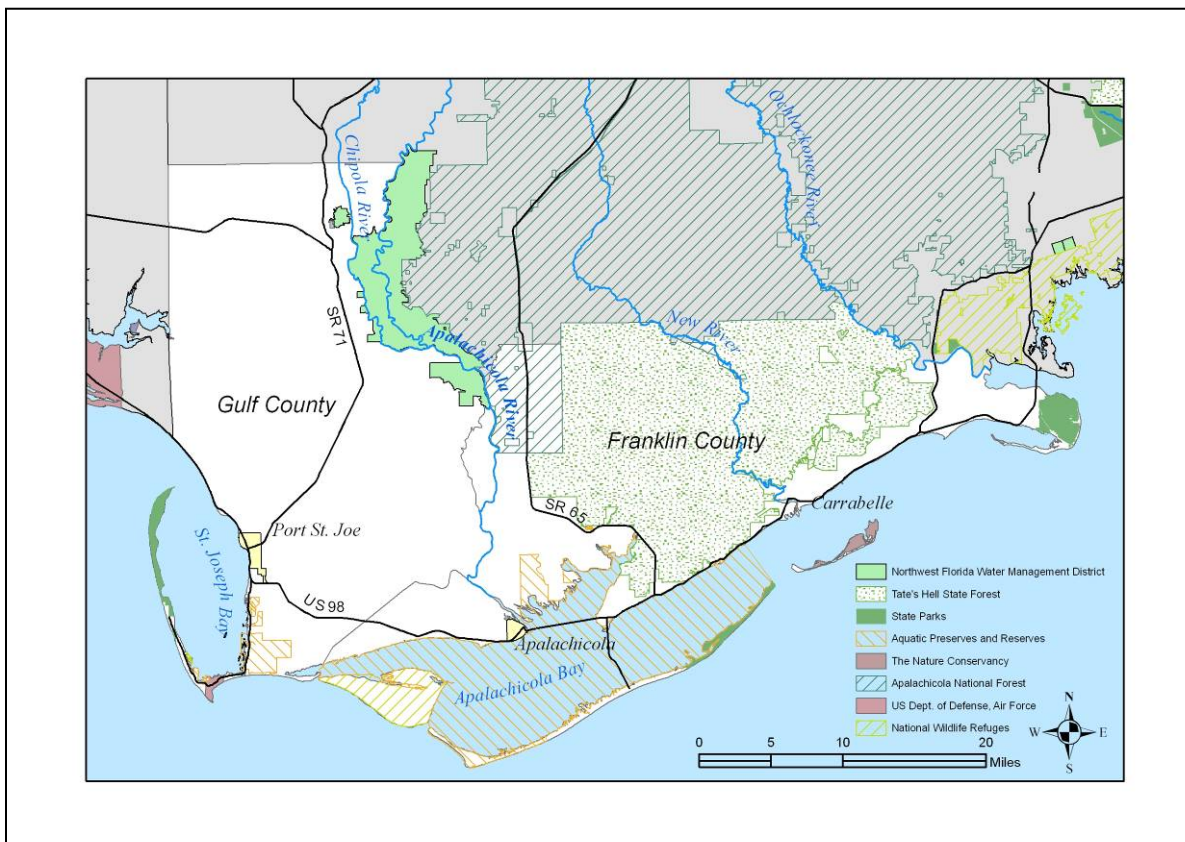
#### *Relationship to the Districtwide Water Supply Assessment*

The District's 1998 Water Supply Assessment was updated in 2003 to incorporate new water demand projections. This RWSP incorporates the analyses and results of both the 1998 WSA and the 2003 updates and provides new data and analyses where possible.

#### *Description of the planning area*

Region V includes Gulf County and Franklin County, with particular emphasis and focus on the designated ASCs shown in Figure 1.1. Specific descriptions of the planning area can be found in the 2005 DWMP and the 1998 WSA, and in the Apalachicola River and Bay Surface Water Improvement and Management (SWIM) Plan. Region V is primarily rural in character, with extensive public conservation lands in the Apalachicola National Forest, St. Joseph Peninsula and St. George Island state parks, St. Vincent Island National Wildlife Refuge, and Tate's Hell State Forest (Figure 1.2). Management and ownership of these public conservation lands is consistent and compatible with this regional water supply plan. Where the use of public conservation lands may include water resources development, the multiple-use goals and objectives of this ownership are met.

Figure 1.2 Region V Vicinity



### *Public participation, education, and outreach*

The RWSP has been provided and made available to local governments, water supply utilities, and other stakeholders with interests in plan development for review and comment. A number of public meetings have been held prior to approval of the RWSP by the Governing Board in a public hearing in January, 2007. Additional educational and outreach opportunities include RWSP distribution via the District's website, staff contacts, local public meetings and presentations, and information sharing with local governments, utilities, and private interests.

### *Technical workshop*

A technical workshop was held in Franklin County in August 2003 with representatives of the water supply utilities and other interested parties. The results of this participatory process helped define the research studies that led to the development of test wells and ultimately a planned inland groundwater source serving coastal Franklin County. A technical presentation and discussion was also held with the District's Governing Board in April 2004 on the water supply issues of Region V. Additional workshops may be held among key stakeholder groups as the plan is implemented.

## **2.0 Demand Estimates and Projections**

### **2.1 Demand methodology**

Water demand estimates were statistically derived from actual reported water use data provided by individual utilities and permitted users. Domestic and small commercial self-supply are estimated by applying established per-capita rates to populations estimates developed by the University of Florida's Bureau of Business and Economic Research (BEER). Water demand projections were developed by the U.S. Geological Survey and the District. Specific methodologies are discussed in the WSA.

### **2.2 Results**

Overall water demand is projected to increase 20.5% from 2005 to 2025, an increase of 1.2 million gallons per day (Mgal/d). Public supply is the largest component and is projected to increase 31.6% or an additional 1.15 Mgal/d. As the districtwide WSA is updated in 2008, the demand projections will be recalculated to include recent development activity. Several significant land use changes that have been proposed in Franklin County since 2000 may have an impact on the demand for potable water, especially in eastern Franklin County.

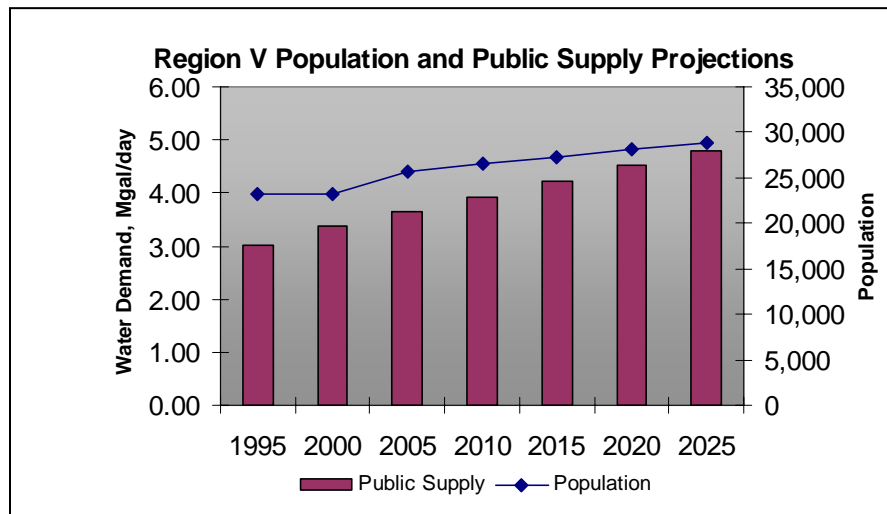
Consolidation of existing utilities, expansions of service areas into previously unserved areas, and the availability of public funds and resources to assist in water supply development are all factors that are expected to increase the level of projected demand for public supply.



Table 2.1 Region V Observed (1995, 2000) and Projected (2005-2025) Water Demand

<i>Average Daily Flow (Mgal/d)</i>							
<u>Water Use Category</u>	<u>1995</u>	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>
Public Supply	3.02	3.39	3.64	3.93	4.22	4.52	4.79
Domestic/Small Public SS	0.37	0.39	0.44	0.46	0.47	0.48	0.49
Commercial-Industrial SS	28.70	1.55	1.55	1.55	1.55	1.55	1.55
Recreational Irrigation	0.18	0.22	0.22	0.22	0.22	0.22	0.22
Agricultural Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Power Generation	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>32.27</b>	<b>5.55</b>	<b>5.85</b>	<b>6.16</b>	<b>6.46</b>	<b>6.77</b>	<b>7.05</b>

Figure 2.1 Region V Population and Public Supply Demand Projections



### 2.3 Uncertainties associated with demand projections

As with any long-range projections, a degree of uncertainty exists that should be considered in the application of projected values. Water demand is driven by population, and the factors that influence the future distribution of population are highly variable. Thus, any long-range projections must be used in the proper context and not taken as absolute. Demand projections are re-evaluated at least every five years as part of the District's ongoing water management planning process (the next updates are scheduled for 2008).

## 3.0 Resource Analyses

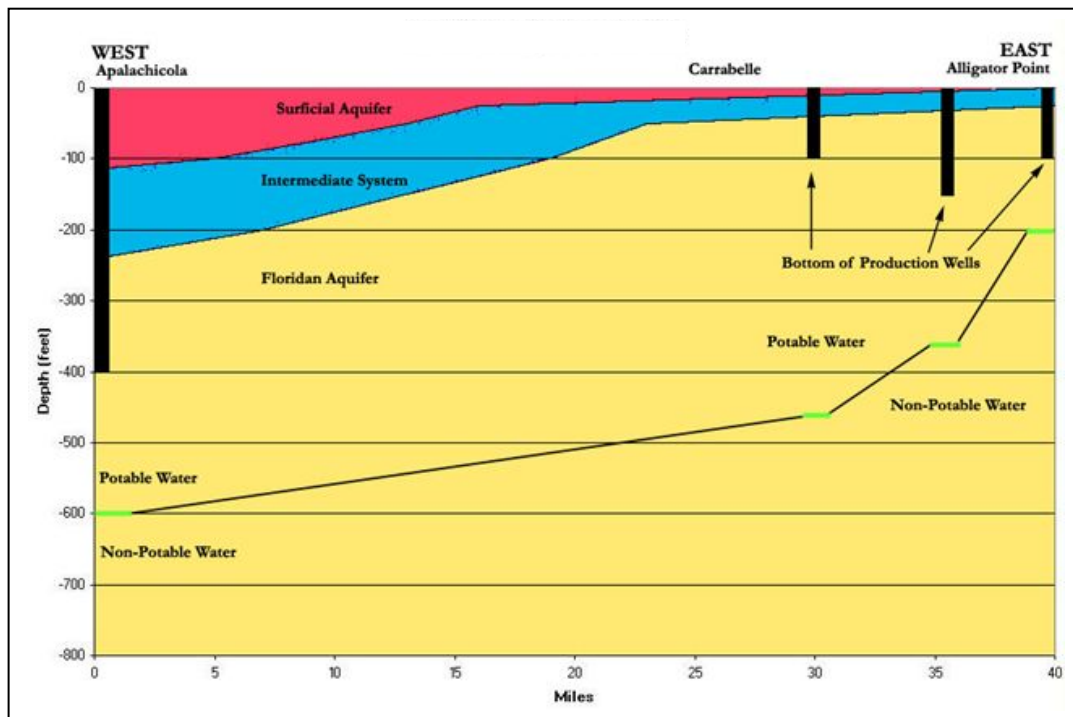
### 3.1 Resource protection criteria

The primary resource protection criterion for the ASC in Region V is saltwater intrusion in the upper portion of the Floridan Aquifer. Other than the need to protect the quality of potable groundwater sources for public water supply no other need for resource protection has been determined. The Gulf County Fresh Water Supply Canal is an existing diversion that previously served the pulp mill in Port St. Joe (no longer in operation) that will be converted for public supply.

### 3.2 Summary of modeling results or other forms of resource analysis

The 1998 Water Supply Assessment describes water supply sources in Region V and includes a bibliography of related resources that describe the groundwater regime of Region V. In summary, the Floridan Aquifer is overlain by the surficial and intermediate aquifers in Region V. Figure 3.1 illustrates how the Floridan dips deeply from east to west, and the overlying surficial and intermediate aquifers increase in thickness from east to west. Depths to the drinking water standard of 250 Mg/l chloride concentration in the Floridan are reached at 200' depth at Alligator Point, and at over 600' depth at Apalachicola. As with all coastal areas and as depicted on the cross-section in Figure 3.1, water quality is poor along the coast and improves with depth further inland. Aquifer tests from previous test well programs indicate wells penetrating the Floridan Aquifer at inland locations may be 500 to 700 gallons per minute depending on the depth and open hole interval of the wells.

Figure 3.1 Cross-Section of the Floridan Aquifer in Franklin County



### 3.3 Minimum flows and levels and reservations

Minimum flows and levels as described in section 373.042, F.S., have not been established in Region V. No water resources within Region V are on the District's 2007 MFL Priority List.

The District Governing Board declared a reservation on the water resources of the Apalachicola River (including the Chipola River) as described in section 40A-2.223, Florida Administrative Code. This reservation includes the surface water flow into the Gulf County Fresh Water Supply Canal for the purposes of water supply for Gulf County.

#### 4.0 Issue Identification

**Water Supply Limitations**--As described in the District's 1998 Water Supply Assessment, Region V lies within the Apalachicola Embayment region of the Panhandle. Accordingly, water availability from the Floridan Aquifer is constrained by the factors typically associated with the embayment, i.e., low transmissivities and poor water quality at depth. Throughout the region, the Gulf of Mexico coastline is a discharge boundary for the Floridan Aquifer System. Heads range from about 40 ft above sea level in northern Gulf County to about 20 ft below sea level at Port St. Joe. Only in the northernmost part of Gulf County does the portion of the aquifer containing fresh water approximately equal the entire thickness of the aquifer. Approaching the coastline, the freshwater portion of the aquifer thins considerably, reflecting the loss of fresh water to the Gulf of Mexico discharge boundary. This places a significant constraint on the long-term viability of water production from the Floridan Aquifer in immediate proximity of the coast, as shown on Figure 3.1.

**Water Suppliers**--Nine public water supply entities serve the residents of Region V (six in Franklin County, three in Gulf County). Public supply systems serve an estimated 93% of Franklin County's 2005 population and 77% of Gulf County's population. The remaining populations of both counties rely on self-supplied domestic wells. Recurring issues with water quality, facility deficiencies, source vulnerability to contamination, and vulnerability to storm surge indicate an opportunity to develop a more secure regional solution to the region's future water needs.

Figures 4.1 and 4.2 show the Gulf County Fresh Water Supply Canal from Doc Whitfield/Old Millville Road (CR387). Figure 4.3 on the following page shows the Gulf County Fresh Water Supply Canal from its origin on the lower Chipola River to its terminus at the water treatment facility in Port St. Joe. The canal was dug in the 1950s to supply fresh water to the St. Joe paper mill in Port St. Joe. The plant was decommissioned and removed in the 1990s and the site is slated for redevelopment as a marina and resort community.

As water suppliers within the region move to identify and develop alternative water supply sources, enhanced coordination among water supply entities should be pursued to leverage resources and to ensure long-term water supply needs are met in an efficient, economical, and cooperative manner. A unified, regional approach can help development of both inland ground water and alternative surface water supplies.



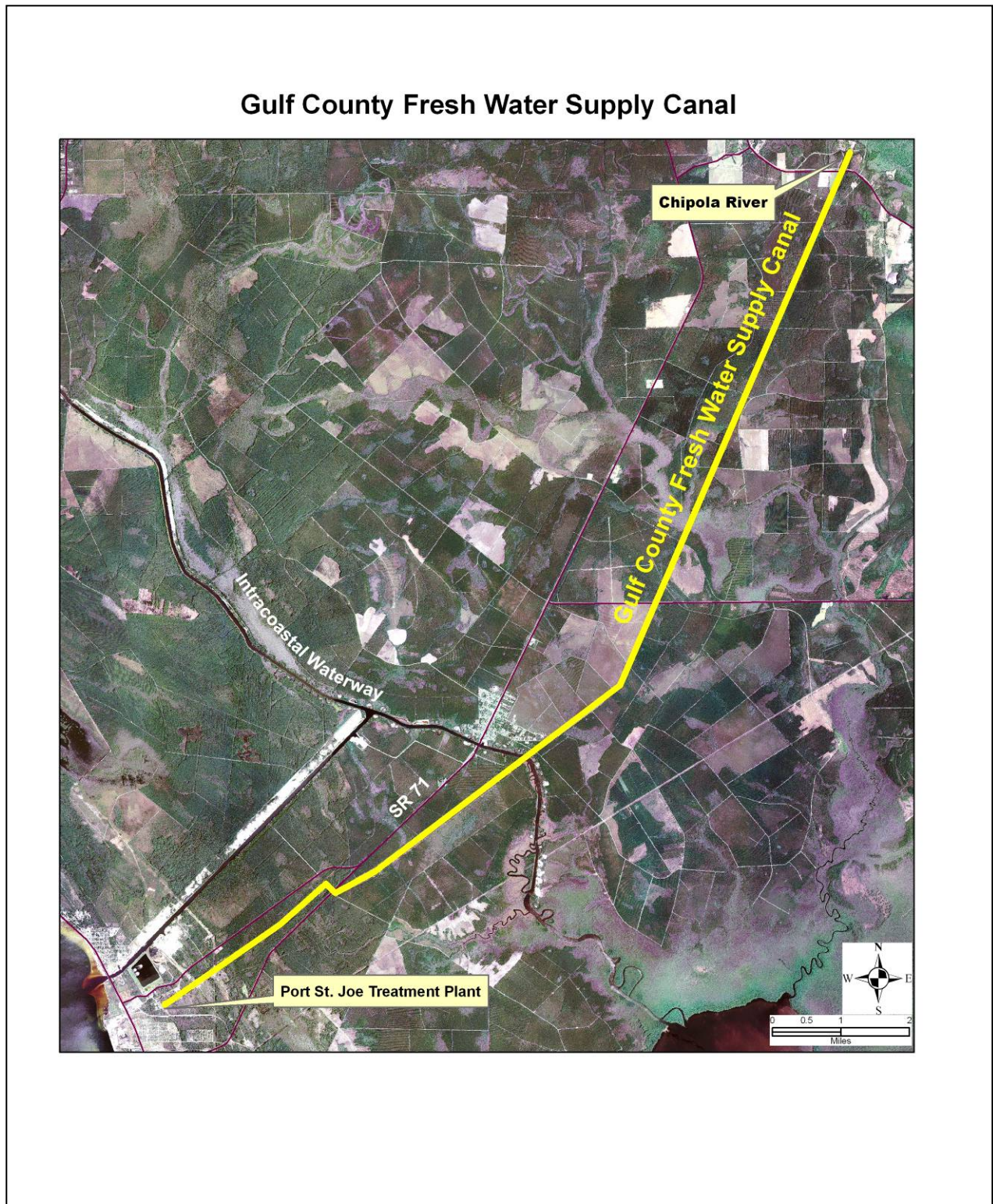
Figure 4.1 Gulf County Fresh Water Supply Canal, north view



Figure 4.2 Gulf County Fresh Water Supply Canal, south view



Figure 4.3 Gulf County Fresh Water Supply Canal Alternative Water Supply Source



## 5.0 Evaluation of Water Source Options

### 5.1 Traditional sources

The primary traditional source of potable water in coastal Region V is localized ground water withdrawals from the Floridan Aquifer. As discussed above, this existing source is very limited in terms of future supplies due to the upward migration and lateral intrusion of salt water. As such, the continued pumping from this source is considered insufficient for future demands.

Historical and current sources of potable water for Gulf County are a combination of shallow sand wells via the Gulf County Fresh Water Supply Canal and ground water from the Floridan and to a lesser extent intermediate aquifers. Permitted withdrawals for public supply water uses are from the Floridan and surficial aquifers.

### 5.2 Alternative sources and storage techniques/non-traditional sources

Alternative or nontraditional sources of water supply in Region V are (either singly or in various combinations):

- surface water direct withdrawal and treatment,
- inland sources from the Floridan Aquifer,
- aquifer storage and recovery,
- reverse osmosis and/or desalination, and
- water from the surficial or intermediate aquifers.

Among these nontraditional sources, yield and cost considerations indicate that water from the inland Floridan Aquifer would be economical, safe, and a dependable alternative source for coastal Franklin County. Surface water direct withdrawal from the Gulf County Fresh Water Supply Canal with appropriate treatment is the preferred alternative, nontraditional source to serve Gulf County.

### 5.3 Conservation

The 1998 Water Supply Assessment acknowledges that conservation opportunities exist in Region V, although conservation alone will not alleviate the concerns for sustainable future water supplies. However, the application of conservation rate structures, conservation measures in local building codes and ordinances, consumptive use permitting conditions, and outreach/education measures associated with nontraditional source development projects will help constrain future growth in demand. Coordination with local governments during declared water shortage events can also help ensure that all available conservation measures are implemented.

Another perhaps most significant conservation measure in Region V is the protection of vast quantities of underground potable water supplies through the public purchase and continued ownership of conservation lands. Ongoing cooperative efforts by the State Division of Forestry and the District for hydrologic restoration enhance the natural storage of water and the conservation of these water resources. These efforts which are an alternative to the more traditional water supply conservation measures may continue to be funded through the District's Surface Water Improvement and Management (SWIM) program and related wetland restoration programs.

#### 5.4 Reclaimed water use

Similar to conservation, the 1998 WSA acknowledges that very limited reuse opportunities exist in Region V. The Department of Environmental Protection (DEP) 2005 Reuse Inventory identifies 0.482 Mgal/day from four small wastewater treatment facilities that qualifies as reuse (sprayfield disposal of treated wastewater). However, this type and amount of reuse has little or no effect on reducing the demand on potable supplies. Public access reuse opportunities, however, may exist within established communities, as well as in developing areas.

Table 5.1 Wastewater Reuse in Region V

	Reuse Type	Capacity (gpd)	Flow (gpd)	Area (acres)
Carrabelle	Sprayfield	300,000	130,000	33
Eastpoint W&SD	Sprayfield	300,000	170,000	38
Lanark Village	Sprayfield	110,000	20,000	16
Gulf Correctional	Sprayfield	350,000	280,000	33
Total		1,060,000	600,000	120

Source: DEP, 2005 Reuse Inventory Report

Reuse is an important component of the District's water supply strategy and is included in the Water Resource and Water Supply Development components of this plan. The availability of reclaimed water for landscape irrigation and other uses will extend the use of, but not necessarily alleviate additional demand on, potable-quality water supplies. Reclaimed water use is considered a beneficial use when such use reduces overall demand on potable-quality supplies and need not be associated with a regulatory requirement for wastewater treatment and disposal purposes.

#### 5.5 Cost Savings and Public Interest

Section 373.0361(2)(e), F.S. requires that the RWSP consider how options under the water supply and water resource development components serve the public interest or lessen overall costs by preventing the loss of natural resources or avoiding greater future expenditures. Water resource development and water supply development projects encompassed within this plan are focused on meeting public supply demands through the planning period in a manner that sustains regional water resources. As described in section 5.2, sustainable alternative sources that are economical, safe, sustainable, and dependable are the preferred sources for the region.

The Water Protection and Sustainability Program is predicated on the Legislature's findings in the enabling legislation that action now to prevent future, more costly expenditures for water supply development is in the public interest. Consistent with the overall approach of this plan, cost information and financial analyses are addressed within the context of specific projects as part of the District's project planning and implementation process.



## 6.0 Water Resource Development Component

### 6.1 Description of roles for water management districts and other parties

The statutorily defined role of the District in water resource development (s. 373.019, F.S.) as it relates to alternative water supply development is:

- The formulation and implementation of regional water resource management strategies that support alternative water supply development;
- The collection and evaluation of surface water and groundwater data to be used for a planning level assessment of the feasibility of alternative water supply development projects;
- The construction, operation, and maintenance of major public works facilities for flood control, surface and underground water storage, and groundwater recharge augmentation to support alternative water supply development;
- Planning for alternative water supply development as provided in regional water supply plans in coordination with local governments, regional water supply authorities, multi-jurisdictional water supply entities, special districts, and publicly owned and privately owned water utilities and self-suppliers;
- The formulation and implementation of structural and nonstructural programs to protect and manage water resources in support of alternative water supply projects; and
- The provision of technical and financial assistance to local governments and publicly owned and privately owned water utilities for alternative water supply projects.

### 6.2 Water Resource Development projects

This section of the plan identifies projects and activities that support development of alternative sources of water supply in Region V. As described above, these projects are primarily the responsibility of the District.

#### **6.2.1 Hydrologic and Water Quality Data Collection, Monitoring, and Analysis**

This project provides essential water resource data, analysis, and modeling for determining the location, distribution, and physical characteristics of production wells and other supply sources. The project also provides the monitoring necessary to ensure that impacts related to new production wells and other withdrawals are managed to protect the resource. This project is inclusive of water resource development in support of developing alternative sources of water supply to serve all Region V communities.

Hydrologic data collection, water resource analysis, modeling, and engineering ensure that the planned production capacities can be sustained without harming surface and groundwater resources and related natural systems. Water quality data collection and analysis determines the amount and level of treatment necessary for potable supplies. Additionally, long-term monitoring and modeling helps establish the response

of water resources to ongoing usage and other pressures, thus helping to identify potential future challenges in a timely and manageable manner.

#### ***6.2.2 Regional Water Supply Coordination, Source Protection, and Engineering and Technical Assistance***

Where the District and participating utilities have identified the need for a multi-jurisdictional approach, the District will help coordinate and support a regional water supply entity, cooperative, working group, or other inter-utility arrangement. Other assistance may include source protection, water resources engineering, and other technical assistance. Source protection may be inclusive of surface watershed and groundwater resource protection and restoration activities implemented through this and associated programs.

#### ***6.2.3 Water Reuse and Conservation Assistance***

Water reuse is the deliberate, beneficial use of reclaimed water. Reuse is an important component of the regional water supply strategy and is included wherever feasible in Region V as a way to reduce demand for potable quality water. The District's role in developing public access beneficial reuse will include coordinating among local utilities and providing technical and financial assistance for reuse projects. District staff will also review local comprehensive plan amendments and development proposals, provide normal consumptive use permit review and issuance, and coordinate with DEP's reuse regulation responsibilities.

Water reuse and conservation outreach and education opportunities will be pursued as well under this project. The motel and rental market serving tourists and seasonal residents along the coast, for example, may provide opportunities for enhanced water use efficiency. The Conservation Hotel and Motel Program (CHAMP) is being implemented with success in Region II and can serve as a model for a conservation outreach program in Region V.

#### ***6.2.4 RWSP Implementation***

Coordinating implementation activities, project and program management, completing administrative tasks related to plan implementation and tracking, fulfilling statutory reporting requirements, and related activities are all part of implementing the RWSP for Region V. This project will also provide for technical assistance to local governments and water suppliers, educational and outreach materials and programs within the region, and other related tasks and activities.

Specific components of this project include implementation coordination, tracking, and reporting, demand and distribution projections, other technical assistance, and education and outreach.



Table 6.1 Summary of Water Resource Development Projects for Region V, Franklin and Gulf Counties

<b>Table 6.1 Water Resource Development Projects</b>					
<b>Project</b>	<b>Responsible Entities</b>	<b>Purpose / Objective</b>	<b>Estimated Quantity (Mgal/d)</b>	<b>Time-frame</b>	<b>Funding</b>
					<b>NWFWMD</b>
6.2.1 Hydrologic and Water Quality Data Collection and Analysis	NWFWMD	Collect and analyze surface and groundwater data to support alternative water supply development	3.0	2007 - 2011	\$600,000 Water Management Lands Trust Fund, Water Protection and Sustainability Trust Fund
6.2.2 Regional Water Supply Source Protection, Coordination, and Technical Assistance	NWFWMD, Utilities, Local Governments	Facilitate and coordinate multi-jurisdictional approaches to water supply management and source protection	n/a	2007 - 2011	\$100,000 Water Management Lands Trust Fund, Water Protection and Sustainability Trust Fund
6.2.3 Reclaimed Water Use and Conservation Coordination and Assistance	NWFWMD	Support the development and implementation of beneficial reuse and conservation projects that reduce demand for potable supplies	TBD	2007 - 2011	\$25,000 Water Management Lands Trust Fund, Water Protection and Sustainability Trust Fund
6.2.4 Regional Water Supply Plan Implementation	NWFWMD	Program implementation administration and oversight	9.0	2007 - 2011	\$25,000 Water Management Lands Trust Fund, Water Protection and Sustainability Trust Fund, General Fund

Funding amounts and sources in this table will be determined and updated on a project-specific basis and reported and tracked through the Water Resources Development Work Program required by Ch. 373.536, F.S.

### 6.3 Identification and status of specific water resource development projects that support water supply planning and development.

Hydrologic and water quality data collection and analysis was initiated in 2004 by the District at the request of local governments and concurrence of the District Governing Board. This project was initiated to begin addressing the need for alternative water supply development due to saltwater encroachment and concern about the ability of traditional sources to meet future demand.

In Franklin County, inland test wells have been completed into the Floridan Aquifer at several locations (Figures 6.1, 6.2), and aquifer properties testing is being conducted. Initial results are favorable for production well development in the area, while also meeting long-term conservation and natural systems enhancement goals. The location of the wells in the vicinity of public conservation lands is also favorable for long-term security and protection of groundwater supplies withdrawn for public supply.



Figure 6.1. Franklin County test well drilling



Figure 6.2. Test well production

## 7.0 Water Supply Development Component

### 7.1 Description of roles for water management districts and other parties

The District's role in Alternative Water Supply Development primarily includes funding and coordination assistance, but may also include establishing Minimum Flows and Levels (MFLs) and/or water reservations. At this time there are no applicable or planned MFLs within the region. A reservation, however, has been established as described in section 3.3.

As defined by Florida Statutes (s. 373.019) the primary role of local governments, multi-jurisdictional water supply entities, special districts, and publicly owned and privately owned water utilities for Alternative Water Supply development is:

- The planning, design, construction, operation, and maintenance of alternative water supply development projects;
- The formulation and implementation of alternative water supply development strategies and programs;
- The planning, design, construction, operation, and maintenance of facilities to collect, divert, produce, treat, transmit, and distribute water for sale, resale, or end use; and
- The coordination of alternative water supply development activities with the appropriate water management district having jurisdiction over the activity.

The District may provide assistance through the Water Protection and Sustainability Program, as well as other sources. Per s. 373.1961(3)(f), factors the Governing Board shall give significant weight to in considering proposals for funding under this program include:

1. Whether the project provides substantial environmental benefits by preventing or limiting adverse water resource impacts;
2. Whether the project reduces competition for water supplies;
3. Whether the project brings about replacement of traditional sources in order to help implement a minimum flow or level or a reservation;
4. Whether the project will be implemented by a consumptive use permittee that has achieved the targets contained in a goal-based water conservation program approved pursuant to s. 373.227;
5. The quantity of water supplied by the project as compared to its cost;
6. Projects in which the construction and delivery to end users of reuse water is a major component; and
7. Whether the project will be implemented by a multijurisdictional water supply entity or regional water supply authority.

Additional factors the board must also give consideration to are as described in s. 373.1961 (3)(g).

## 7.2 Water Supply Development projects

Water supply development projects for Region V are described below. Presently anticipated implementation entities and schedules, project objectives, quantities, and funding needs are presented in Table 7.1.

### ***7.2.1 Inland Source Development and Water Supply Source Protection***

This project will provide for development of a detailed engineering analysis of production facility strategy components: infrastructure specifications, cost estimates, alternatives, and associated information such as logistics and scheduling. Construction of alternative water supply facilities is included in this project. Identified source protection and hydrologic restoration efforts are also implemented or maintained to ensure the quality and quantity integrity of the supply source into the future.

### ***7.2.2 Treatment and Transport Facility Development***

This project includes construction of water treatment and transmission facilities as a strategy for alternative supplies based on specifications, engineering and design components, cost estimates and scheduling efforts for implementation. The project includes and facilitates development of an alternative surface water supply treatment facility for coastal Gulf County.

### ***7.2.3 Utility Interconnects and Infrastructure Improvements***

This project supports the interconnection of utility infrastructure and transmission of water to suppliers, including necessary upgrades and system refurbishment.

### ***7.2.4 Reclaimed Water Use and Conservation***

This project promotes the beneficial use of reclaimed water to offset the irrigation demand from public supply potable-quality water for irrigation purposes, and projects that enhance water conservation. Qualified projects do not include those only for wastewater treatment and land application disposal.

Table 7.1 Summary of Water Supply Development Projects

Water Supply Development Projects							
Project/Activities	Responsible Entities	Purpose / Objective	Estimated Quantity (Mgal/d)	Time-frame	Funding Amounts & Sources		
					WPSPTF	NWFWMD	Local
<b>7.2.1 Inland Groundwater Source Development and Water Supply Source Protection</b>							
Franklin County Inland Groundwater Source	Franklin County, Utilities	Develop inland alternative water supply source to abate risk of salt water intrusion in coastal wells	3.0	2007 - 2010	\$500,000	\$500,000	\$0
<b>7.2.2 Alternative Surface Water Treatment and Transport Facility Development</b>							
Gulf County Surface Water Supply	City of Port St. Joe	Develop surface water system to reduce impact on coastal production wells	6.0	2007 - 2009	\$4,000,000	\$0	\$16,000,000 to \$21,000,000
<b>7.2.3 Utility Interconnects and Infrastructure Improvements</b>							
Water Supply System Facility Interconnects, Enhancements, and Improvements	Local Governments and Utilities	Assist with delivery system interconnections and facility improvements	TBD	2007 - 2011	TBD	TBD	TBD
<b>7.2.4 Reclaimed Water Use</b>							
Water Reuse Facilities	Local Governments and Utilities	Construction of water reuse facilities to replace use of potable water for landscape irrigation and other beneficial uses	<1.0	2007 - 2011	TBD	TBD	TBD

Costs listed reflect total capital cost estimates. Planning-level operation and maintenance costs are generally estimated at \$0.30 to \$0.80 per 1,000 gallons, but will be further defined in specific project plans.

TBD - to be determined

## 8.0 Identification of Alternative Water Supply Development Projects

All of the water supply development projects identified in Table 7.1 are related and considered alternative, nontraditional water supply development projects.

## 9.0 Identification of Multi-jurisdictional Approaches

The multi-jurisdictional approach of the Region V RWSP is to first seek creation of a regional water supply entity or similar utility aggregate to serve the Franklin County ASC. If a regional water supply authority is not feasible or possible, it may be necessary to create interlocal agreements and commitments to develop the appropriate partnerships to operate and maintain a regional water production and distribution network. In Gulf County, multi-jurisdictional approaches are encouraged by the District to ensure the use, protection, and viability of the Gulf County Fresh Water Supply Canal as an alternative source of supply for the City of Port St. Joe and in outlying service areas in Gulf County.

## 10.0 Relationship of Projects to Five-Year Work Program

Consistent with statutory requirements the approved District Five-Year Water Resource Development Work Program (section 373.536, F.S.) will be modified as necessary. The Work Program is updated every year as part of the District's Consolidated Annual Report. The Work Program is used by the District to accommodate, monitor, and report on District projects and activities as necessary for successful plan implementation. Thus, as new Water Resource Development projects or Water Supply Development projects are identified by the District and cooperating local governments and utilities in Region V, they will be incorporated into the RWSP process through the annual update of the Work Program.

## 11.0 Summary and Recommendations

Further development of groundwater supplies from the Floridan Aquifer in the coastal area of Region V threatens water resources and public water supplies with saltwater intrusion. The preferred alternative sources of new water supplies are inland groundwater using the Floridan Aquifer and surface water. Test well development and aquifer properties testing at inland sites in Franklin County indicate that groundwater development for 3.0 Mgal/day is technically feasible and within the production capacity of the Floridan Aquifer. Alternative surface water supplies for the City of Port St. Joe and Gulf County can be provided by the Gulf County Fresh Water Supply Canal. This alternative supply source may be designed to produce up to 6.0 Mgal/d and will require additional work to provide adequate capacity, treatment, storage, and distribution facilities to meet future demands.

The District can help address the need for new, nontraditional sources of water by implementing water resource development projects and providing technical and financial assistance for water supply development projects. It is recommended that the following water resource and water supply development projects be implemented:

### **Water Resource Development Projects**

1. Hydrologic and Water Quality Data Collection, Monitoring, and Analysis
2. Regional Water Supply Coordination, Source Protection, and Engineering and Technical Assistance
3. Water Reuse and Conservation Assistance
4. RWSP Implementation

### **Water Supply Development Projects**

1. Inland Groundwater Source Development and Water Supply Source Protection
2. Alternative Surface Water Treatment and Transport Facility Development
3. Utility Interconnects and Infrastructure Improvements
4. Reclaimed Water Use

## References

- Bureau of Economic and Business Research (BEBR). *2003 Florida Statistical Abstract*. Gainesville: University of Florida Press, 2003.
- Bureau of Economic and Business Research (BEBR). Florida Population Studies, Volume 37, Number 2, Bulletin 138. Projections of Florida Population by County, 2003 - 2030. Gainesville: University of Florida, 2003.
- Guo, Weixing, and Langevin, C.D. *User's Guide to SEAWAT: A Computer Program for Simulation of Three-Dimensional Variable-Density Ground-Water Flow*: U.S. Geological Survey Techniques of Water-Resources Investigations Book 6, Chapter A7. 2002
- Hantush, M.S., *Hydraulics of Wells*, In *Advances in Hydrosience* (V.T. Chow, editor), Vol. 1, pp. 281-432, Academic Press, New York. 1964
- Harbaugh, A.W., *MODFLOW-2005, the U.S. Geological Survey modular ground-water model -- the Ground-Water Flow Process*: U.S. Geological Survey Techniques and Methods 6-A16. 2005
- Marella, R.L, Mokray, M.F., Hallock-Solomon, M. *Water Use Trends and Demand Projections I the Northwest Florida Water Management District*. US Geological Survey, Open-File Report 98-269, Tallahassee, FL., 1998.
- Northwest Florida Water Management District. *District Water Management Plan*. Havana, FL., 1994, and 2000, 2005 Updates
- Northwest Florida Water Management District. *District Water Supply Assessment, 2003 Update*. Havana, FL., 2003.
- Post, Buckley, Schuh, and Jernigan. *Technical Services for Surface Water Supply Facilities Planning and Feasibility Analyses, Final Draft Report: Conceptual Alternative Water Supply Development Projects and Planning Level Cost Estimates*. PBS&J, Inc. Tallahassee, Florida. August, 2006.
- Preble-Rish, Inc. and Camp, Dresser & McKee, Inc. *Contract Documents and Technical Specifications for Phase II: Surface Water Treatment Plant. Prepared for City of Port St. Joe, Gulf County, Florida*. May, 2006.
- Ryan, P. L., Macmillan, T.L., Pratt, T.R., Chelette, A.R., Richards, C.J., Countryman, R.A. Marchman, G.L. *District Water Supply Assessment*. Northwest Florida Water Management District. Havana, FL., 1998.
- Tonsmeire, D., D. J. Cairns, E. Hemmert, and P. L. Ryan. 1996. *The Apalachicola River and Bay Management Plan*. Program Development Series 96-1. Havana: Northwest Florida Water Management District.
- Vergara, B. *Final Report: 1-in-10 Year Drought Requirement in Florida's Water Supply Planning Process*. Prepared by 1-in-10 Year Drought Subcommittee of the Water Planning Coordination Group, 1998.