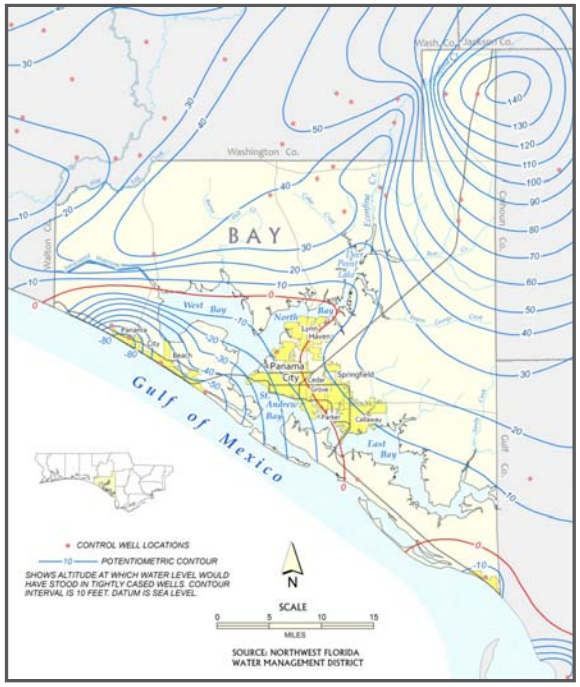
REGION III

REGIONAL WATER SUPPLY PLAN

Bay County, Florida
August 2008



Northwest Florida Water Management District
Program Development Series 08-02

Region III

Regional Water Supply Plan

Bay County, Florida

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Cover graphics: Bay County Utilities (courtesy of Bay County Water Division), potentiometric surface map (center), and Deer Point Lake Reservoir (bottom).

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ACRONYMS AND ABBREVIATIONS

ADR	Average Daily Rate
AFSIRS	Agricultural Field Scale Irrigation Requirements Simulation
ASC	Area of Special Concern
ASR	Aquifer Storage and Recovery
BEBR	Bureau of Economic & Business Research (Univ. of Florida)
CHAMP	Conservation Hotel and Motel Program
CUP	Consumptive Use Permit
FAC	Florida Administrative Code
F.S.	Florida Statutes
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
ft.	Feet
ft^2/d	Square Feet per Day
ft^3/sec	Cubic Feet per Second
gal/d	Gallons per Day
gal/min/ft	Gallons per Minute per Foot
gpcd	Gallons per Capita per Day
I/C/I	Commercial, Industrial, and Institutional
in/yr	Inches per Year
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
mi^2	Square Miles
MFL	Minimum Flows and Levels
NWFWMD	Northwest Florida Water Management District
RO	Reverse Osmosis
RWSP	Regional Water Supply Plan
USACOE	United States Army Corps of Engineers
USGS	United States Geological Survey
WFRPC	West Florida Regional Planning Council
WMD	Water Management District
WMLTF	Water Management Lands Trust Fund
WPSPTF	Water Protection and Sustainability Program Trust Fund
WRCA	Water Resource Caution Area
WS	Water System
WSA	Water Supply Assessment
WWTP	Wastewater Treatment Plant

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EXECUTIVE SUMMARY

The purpose of this regional water supply plan (RWSP) is to identify and plan for future water supply needs within the Northwest Florida Water Management District's Region III, which encompasses Bay County, Florida. In 1998, the Northwest Florida Water Management District (NWFWMD or District) identified the coastal area of the region as an Area of Special Concern (ASC) for water supply. The primary concern identified at that time was salt water intrusion in the upper portion of the Floridan Aquifer due to ground water withdrawals for potable water supply. More recently, coastal ground water withdrawals in the region have largely been abandoned, with most public supply demands county-wide being met by use of Deer Point Lake Reservoir.

In February 2008, the NWFWMD Governing Board directed the development of a RWSP to identify additional alternative water supply sources for Region III. Development of alternative supplies will diversify long-term public supply sources, helping drought-proof the region and minimizing any vulnerability to public water supplies resulting from potential major hurricane storm surge effects on the surface water reservoir.

Current (2005) public water supply demand in Region III is estimated at 28.92 million gallons per day (MGD). Demand for 2030 is projected to nearly double, to 56.94 MGD. This plan identifies an additional 10 MGD that may be developed to ensure available water supplies exceed the projected 2030 demand for Bay County. The primary alternative water supply option identified to serve the region is development of an inland source for the withdrawal of fresh ground water from the Floridan Aquifer. Although other sources, such as demineralization of brackish 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, protection of existing water resources, cost, and feasibility.

Responsibilities for water supply planning and development are statutorily defined for the District, local governments, and utilities. Water resource development is primarily the District's responsibility and includes data collection, analysis, coordination, and oversight from a regional perspective. 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. Projects identified in this RWSP under these areas of responsibility are:

Water Resource Development Projects

- Hydrologic and Water Quality Data Collection, Monitoring, and Analysis
- Regional Water Supply Coordination and Technical Assistance
- Water Reuse and Conservation Assistance

Water Supply Development Projects

- Inland Ground Water Source Development and Water Supply Source Protection
- Utility Interconnections and Infrastructure Improvements
- Water Reuse Facilities

A primary funding source for the District's implementation of the RWSP is the Water Protection and Sustainability Program Trust Fund. The Florida Legislature established this trust fund in 2005 to provide matching funds for alternative water supply development. The associated legislation also requires that this plan be approved by the governing board in order to utilize the matching funds for eligible projects identified in it. Other funding sources include local government and utility revenues, District general revenue funds, Florida Forever capital improvement funding, the Water Management Lands Trust Fund, legislative grants and appropriations, and state and federal grant and loan programs.

1 INTRODUCTION

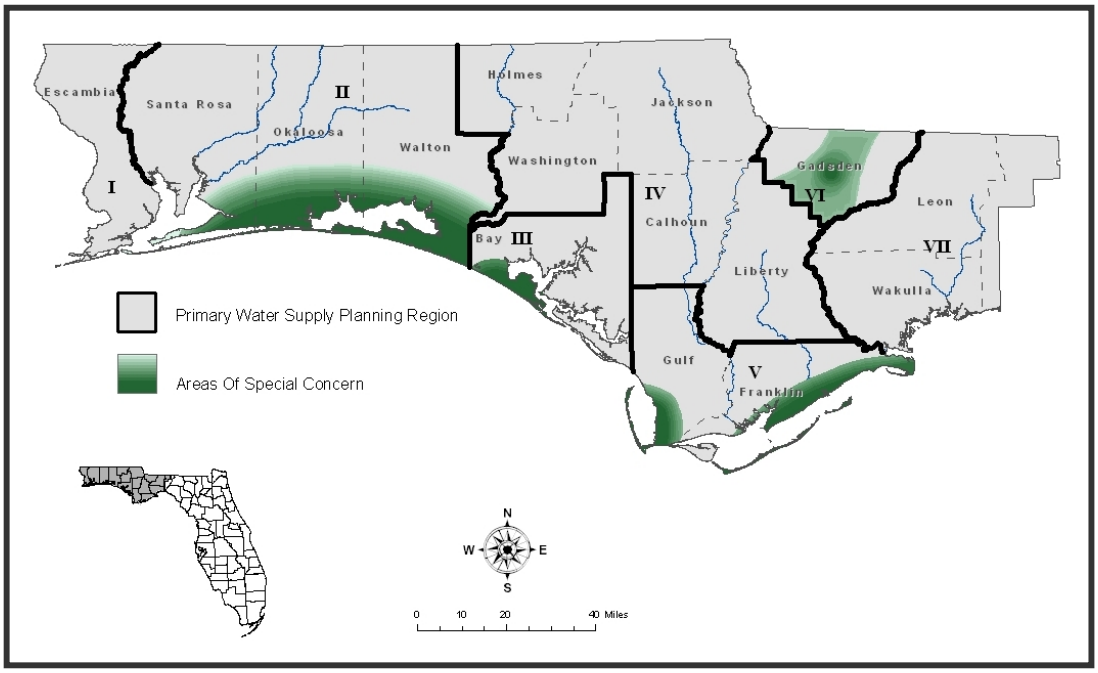
Purpose

The purpose of this plan is to identify and plan for future water supply needs in the region encompassing Bay County, in accordance with s. 373.0361, F.S. Additionally, the plan is intended to facilitate development and potential funding of alternative water supply sources in accordance with sections 373.1961 and 403.890, F.S. The plan also reports updated water demand projections for the region to facilitate planning for water supplies through 2030.

Implementation of this Regional Water Supply Plan (RWSP) will help ensure the availability of sufficient water for existing and future reasonable-beneficial uses and affected natural systems within water supply planning Region III (Figure 1). This region consists solely of Bay County, in recognition of that county's unique water supply issues and primary public supply source. The plan describes source constraints and identifies solutions to water supply issues in Bay County. The solutions identified and specific water resource development and water supply development projects described are intended to meet water supply needs through at least 2030.

An Area of Special Concern (ASC) for water supply was previously identified along the coast in the vicinity of Panama City Beach (Figure 1), where historic groundwater withdrawals caused a decline in coastal Floridan Aquifer levels by as much as 80 feet (Ryan et al. 1998). Although the region was not designated as needing a regional water supply plan in the 1998 Water Supply Assessment (WSA) (Ryan et al. 1998), the report did recognize that coastal public supply wells are subject to salt water intrusion. Strategies identified in the WSA included increasing the use of surface water and shifting ground water production away from the coast. Since completion of that assessment, ground water withdrawals along the coast have largely been abandoned in favor of expanded use of Deer Point Lake Reservoir for water supply.

Figure 1. Water Supply Planning Regions



In February 2008, the District's Governing Board directed staff to develop a plan to identify alternative water supplies for Region III. The citizens of this region currently rely on Deer Point Lake Reservoir as their primary source of drinking water. The development of alternative water supplies will diversify long-term public supply sources, and it will help drought-proof the region through establishment of facility interconnections and source redundancy. It will also help minimize any public supply vulnerability associated with potential salt water flowing into the reservoir during major hurricane surge events.

Plan Goal and Objectives

The goal of the Region III Regional Water Supply Plan is to provide for the reasonable-beneficial future water supply for the region in an environmentally sound and economically feasible manner. Objectives of this plan are to:

1. Identify suitable inland ground water source locations to serve as an alternative water supply source.
2. Minimize the effects of drought on the region through construction of backup water supply facilities.
3. Coordinate with Bay County Utilities to secure funding for the design and construction of inland water supply production wells as an alternative water supply source.

Planning Process

Relationship to the District-wide Water Supply Assessment

In 1998, the Northwest Florida Water Management District conducted a district-wide water supply assessment that compared the current and future potable water demand to the source availability. In accordance with Chapter 373.036, F.S., the WSA established seven water supply planning regions and made recommendations to the need for additional water supply planning efforts for northwest Florida. The WSA was updated in 2003 (NWFWMD 2003) to include more recent projections of water demand to the year 2025. The WSA is currently being updated again to provide projections through 2030.

This RWSP incorporates the results of the 2008 WSA update and provides data and analyses of Region III for the 20-year planning period (through 2030).

Description of the Planning Area

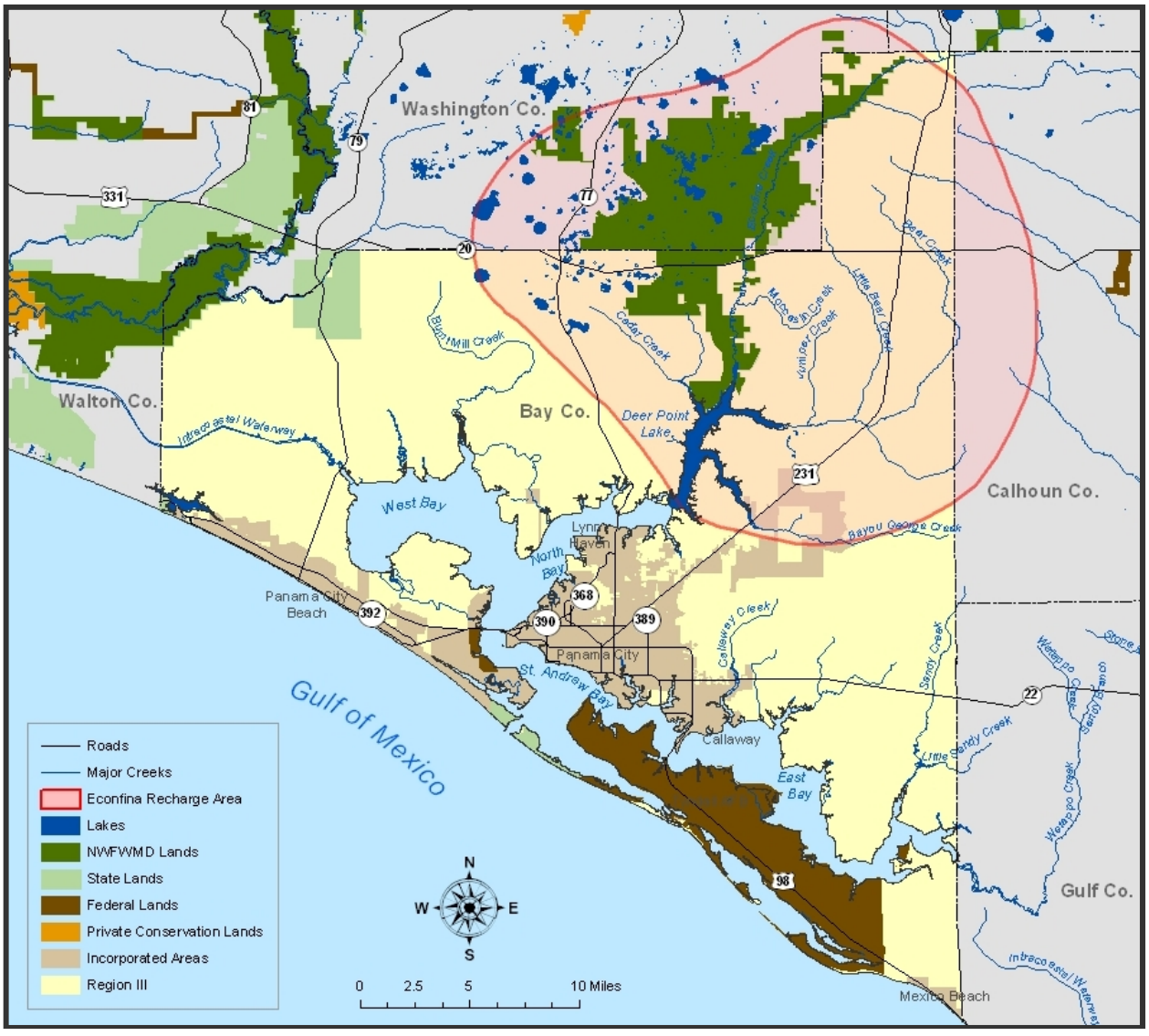
Region III is within the St. Andrew Bay watershed and is comprised of Bay County, including the municipalities of Callaway, Cedar Grove, Lynn Haven, Mexico Beach, Panama City, Panama City Beach, Parker and Springfield. Most of these municipalities purchase their potable water from Bay County Utilities Department, which holds the permit to use water from the Deer Point Lake Reservoir. The City of Lynn Haven is the only municipality not entirely served by the County's utility; however, future increases in demand for the city are expected to be provided from the reservoir.

Historically, pumping of coastal wells resulted in declining groundwater levels and salt water intrusion. In 1957, a Special Act of the Legislature gave the County permission to build and operate a reservoir to serve as a new long-term water supply source. Subsequently, a sheet pile dam was constructed in 1961 across a narrow portion of North Bay at Deer Point, about three miles northeast of

Lynn Haven. Deer Point Lake Reservoir, which is impounded by the dam, covers between 4,500 to 5,500 acres and has a storage volume of about 32,000 acre-feet. An annual average of about 600 million gallons per day is discharged into the reservoir from its contributing watershed (Richards 1997; Crowe et al. 2008).

Because Deer Point Lake Reservoir serves as the major water source for the residents of Bay County, protection of this surface water resource, its watershed, and the recharge area which contributes flow as spring discharge to Econfina Creek continues to be a high priority for the NWFWMD. To date, for example, the District has acquired over 40,000 acres in the Econfina Recharge Area of Washington and Bay counties (Figure 2). This acquisition provides protection and preservation of the groundwater recharge area critical to safeguarding and sustaining both the quantity and quality of the principal water supply source.

Figure 2. Region III with Econfina Recharge Area



More detailed descriptions of the planning area, its resources, and underlying issues can be found in Crowe et al. (2008), Richards (1997), and NWFWMD (2000; 2005; 2008).

Public Participation, Education, Outreach, and Technical Workshop

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. Public meetings have been held prior to approval of the RWSP, including discussion at Governing Board meetings in February and June 2008. Additional educational and outreach opportunities include RWSP distribution via the District's website, and information sharing with local governments and Bay County utilities. A public and technical workshop was held in Bay County on May 28, 2008, with representatives of the water supply utilities, local governments, and other interested parties. District staff will continue to participate with local governments and utilities in RWSP implementation and assist local governments in meeting associated comprehensive planning requirements.

2 DEMAND ESTIMATES AND PROJECTIONS

This section describes estimated 2005 water use and projected future annual average water demands for the 2010-2030 planning period, as well as statutorily required estimated water needs during a 1-in-10 year drought event. The estimates and projections were developed as part of the 2008 Water Supply Assessment process (NWFWMD 2008), applying a methodology previously developed by the U.S. Geological Survey (Marella et al. 1998). An overview of use estimate and projection methodologies for the most significant water demands is provided below. A more detailed explanation of the methodologies for all water use categories can be found in the WSA (NWFWMD 2008).

For the purposes of water supply planning, water use is divided into six categories: Public Supply, Domestic Self-Supply, including Small Public Water Systems, Commercial, Industrial, and Institutional Self-Supply, Agricultural Irrigation Self-Supply, Recreational Irrigation Self-Supply and Thermoelectric Power Generation Self-Supply.

The largest category of water use is Public Supply. To determine 2005 water use for this category, a list of public supply permittees using greater than 0.1 mgd was compiled from the NWFWMD permitting database[1] and reported annual average withdrawals for the year were totaled. Note that water use, as reported in this RWSP, represents the quantity of water withdrawn from ground or surface water sources or the quantity of water purchased from other utilities prior to distribution to retail customers. As a result the water use estimates generally do not account for treatment or distribution systems losses. Demand projections were developed for five-year increments from year 2010 to 2030 and are intended to represent annual average water needs.

The 2005 population served by domestic self-supply and small public water systems was estimated as the total county population (University of Florida 2007) minus the population served by large public supply utilities. The 2005 water use for domestic self-supply and small public water systems was calculated as the population served multiplied by 106 gallons per capita per day (gpcd). The value of 106 gpcd is a statewide average for domestic self-supplied water users (Marella 2004). To project domestic self-supply uses for the planning period, the self-supplied population was assumed to remain a constant fraction of the total county population, applied to BEBR medium future population estimates.

[1] This also includes permittees that were using greater than 0.05 mgd and that were thought to approach the 0.1 mgd threshold over the planning period.

The 2005 Commercial, Industrial, and Institutional (I/C/I) water use values reflect the annual average withdrawal rates reported by each permittee. To project future water use, a questionnaire requesting projections was sent to each permittee. The permittee-supplied projections were used when available. For those users who also purchase surface water, projections of future I/C/I demands were obtained from the Bay County Utilities' consumptive use permit renewal application.

As shown in Table 1, overall water demand in Region III is projected to increase nearly 36% from 2010 to 2030, an increase of 26.7 MGD. Public supply is the largest component and is projected to increase about 92% over the same period for a total increase of approximately 27 MGD. Commercial-Industrial uses are anticipated to remain relatively constant; however this use remains a large share of overall water use for the region.

Table 1. Region III Average Daily Water Use Estimates and Demand Projections

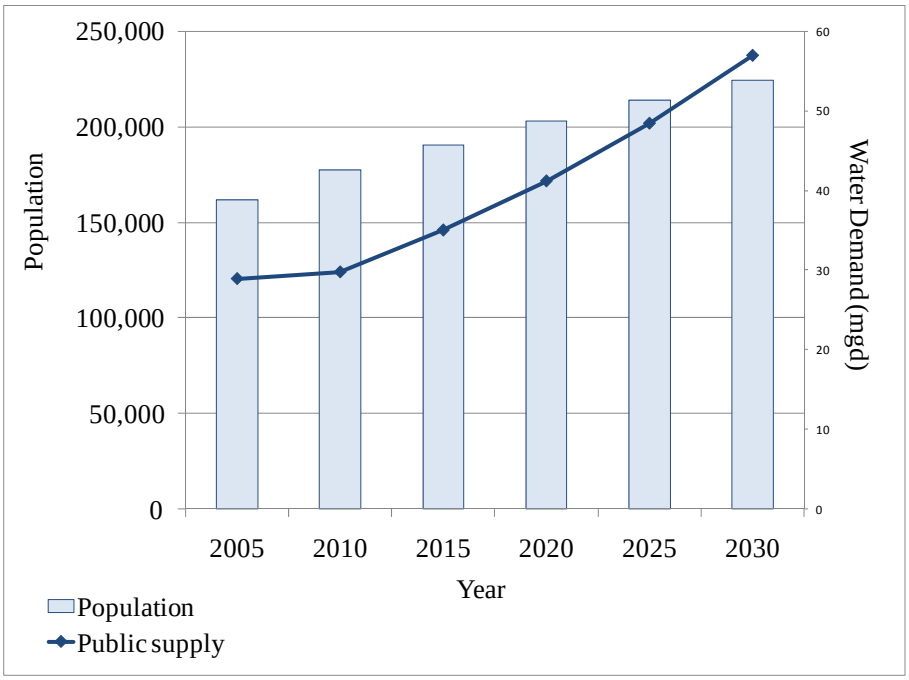
	Estimated*	Projected*				
Water Use Category	2005	2010	2015	2020	2025	2030
Public Supply	28.92	29.77	35.02	41.18	48.42	56.94
Domestic self-supply	1.64	1.80	1.94	2.06	2.18	2.28
Ind-Com-Inst (I/C/I)	24.20	25.68	25.68	25.68	25.68	25.68
Recreational Irrigation	2.74	2.82	3.02	3.22	3.42	3.62
Agricultural Irrigation	2.46	2.46	2.46	2.46	2.46	2.46
Power Generation	5.80	12.48	12.88	10.67	10.67	10.67
Total	**65.77**	**75.00**	**80.98**	**85.27**	**92.82**	**101.65**

*Values expressed in million gallons per day (MGD).

According to recent BEBR medium estimates (University of Florida 2007), the population of Bay County is expected to increase by 26.4%—nearly 47,000 people—between 2010 and 2030 (Figure 3). The location of the population will influence demand at the utility level.

Planned new growth and development are especially pronounced within the approved West Bay Sector Plan, which covers approximately 75,000 acres west and north of West Bay. The Sector Plan includes a 4,000 acre airport industrial district, to be the site of the relocated Panama City-Bay County International Airport. The Sector Plan also allows over 27,000 new residential dwelling units and includes over 37,000 acres designated for preservation and protection of West Bay and associated natural resources (Bay County 2008). Significant land use change is also occurring and/or planned for elsewhere, including in the vicinity of Panama City Beach, East Bay, and the area around Southport. The extent to which these changes are manifested will affect future population and demand for public supply and other categories of water use.

Figure 3. Region III Population and Public Supply Demand Projections



Bay County Utilities is the largest gross public water supplier in the region and accounts for approximately 94% of the demand in this category throughout the planning horizon (Table 2). Panama City Beach and Panama City are the two largest municipal providers receiving water from the County, using approximately 12.3 MGD and 6.5 MGD, respectively, in 2005 (Bay County Utilities 2008).

Table 2. Average Daily Public Water Use Estimates and Demand Projections by Utility

	Estimated*	Projected*				
Utility	2005	2010	2015	2020	2025	2030
Bay County Utilities	26.91	27.47	32.48	38.39	45.38	53.65
Lynn Haven, City of	1.94	2.22	2.46	2.71	2.95	3.19
Sandy Creek Utilities, Inc.	0.07	0.07	0.08	0.08	0.09	0.10
Total	**28.92**	**29.77**	**35.02**	**41.18**	**48.42**	**56.94**

Population	2005	2010	2015	2020	2025	2030
Total Population (BEBR)	161,700	177,400	190,600	202,900	214,000	224,200
Population Served, Public Supply	146,185	160,379	172,312	183,432	193,467	202,688
Population Served, Domestic SS	15,515	17,021	18,288	19,468	20,533	21,512

* Water use estimates and demand projections expressed in million gallons per day (MGD).
Population estimates and projections (medium) provided by University of Florida (BEBR) (2006, 2007)

1-in-10 Drought Year Projections

The 1-in-10 drought year demands for public supply are generally estimated to be 6% to 10% higher than the demand during an average year (Water Planning Coordination Group 2005). The water demand estimates applied in this plan, however, incorporated actual water use directly, including during significant drought conditions experienced in 1999 through 2002. Additional discussion about

demands anticipated during 1-in-10 year drought conditions is provided in the WSA (NWFWMD 1998; 2008).

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 for public supply is driven by population, and the factors that influence the future distribution of population are highly variable. Likewise, estimating increases in water use for the public supply and domestic self-supply categories in a 1-in-10 year drought event is also difficult. Actual effects of drought may vary greatly across the region. Drought conditions may also influence water sources differently. 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 update is scheduled for 2013.

3 RESOURCE ANALYSES

Resource Protection Criteria

Resource protection criteria for Region III include prevention of salt water intrusion in the coastal Floridan Aquifer within the ASC, protection of lacustrine and estuarine resources associated with Deer Point Lake Reservoir and North Bay, and prevention of any potential wetland and other water resource impacts associated with ground water pumping. Coastal ground water pumping within the ASC has been greatly reduced since the 1998 WSA, and this resource is now only used on a limited basis for water supply.

Protection of Deer Point Lake Reservoir includes water quality protection, which requires appropriate growth management and land development regulation on the part of local governments. Crowe et al. (2008) provides an evaluation of the resource, concluding that managed use of the reservoir is sustainable without adversely affecting downstream estuarine habitats. Deer Point Lake Reservoir and North Bay are on the District's priority list for development of Minimum Flows and Levels (MFLs), with evaluation scheduled for completion in 2015.

Ongoing analysis of the aquifer conducted as water resource development will include evaluation of the potential for wetland and water resource impacts associated with future ground water pumping. The data and analyses gained will be applied to ensure that the potential for such impacts is avoided.

Summary of Modeling Results or Other Forms of Resource Analysis

The Water Supply Assessment (NWFWMD 1998, 2008) generally describes water supply sources in Region III. Crowe et al. (2008) and Richards (1997) also describe the primary resources in the region. These include Econfina Creek, which is the primary tributary to Deer Point Lake Reservoir (Figure 2). Richards (1997) provides a detailed analysis of regional hydrology, ground water system characteristics, and modeling of the recharge area for springs discharging into Econfina Creek. Crowe et al. (2008) describes watershed conditions within Deer Point Lake Reservoir and modeling of conditions within receiving waters in North Bay. The St. Andrew Bay SWIM Plan (NWFWMD 2000) characterizes watershed resources, functions, and challenges.

Minimum Flows and Levels and Reservations

Minimum flows and levels as described in section 373.042, F.S., have not been established in Region III. Deer Point Lake Reservoir and North Bay of the St. Andrew Bay watershed are included on the District's 2007 MFL Priority List for further consideration in 2015. The District's MFL priority list is updated annually and may be found at http://www.nwfwmd.state.fl.us/rmd/mfl/mfl.htm.

4 ISSUE IDENTIFICATION

Water Supply Limitations

Limitations on the water supply are described in the District's Water Supply Assessment for Region III (Ryan et al. 1998; NWFWMD 2008). Among these are salt water intrusion due to past coastal ground water withdrawals and the potential for diminished surface water quality due to land use change and nonpoint source pollution. Other issues identified include the potential for saltwater intrusion into Deer Point Lake Reservoir during significant storm surges from tropical events and the need in the future to possibly provide for a back up supply during episodes of extreme drought.

Water Suppliers

Three public water supply entities serve the residents of Region III (Table 2). As noted previously, the primary water supplier is Bay County Utilities (see Section 2). Public supply systems serve an estimated 90% of Bay County's population, which was estimated to be 165,515 in 2006 (University of Florida 2007). The remaining population of Bay County relies on self-supplied domestic wells.

5 EVALUATION OF WATER SOURCE OPTIONS

Traditional Sources

The primary traditional source of potable water in Bay County is Deer Point Lake Reservoir. As conditioned in a consumptive use permit, the County may withdraw up to 98 MGD through the year 2040. As discussed in Crowe, et al. (2008), this existing source appears to be adequate to meet the region's long-term demands. The reservoir, however, may be somewhat vulnerable to storm surge associated with Category 3 or larger hurricanes, as well as extreme drought conditions.

Alternative Sources

The primary alternative source of water supply identified in Region III is inland ground water from the Floridan Aquifer. Yield and cost considerations indicate that water from the inland Floridan Aquifer would be economical, safe, and a dependable alternative source for coastal as well as the rest of Bay County. As described in Section 7, it is anticipated that this source may initially provide approximately 10 MGD once constructed. Additional alternative water supply sources, as noted in Section 7, include utility interconnections and associated infrastructure enhancements, along with beneficial reuse of reclaimed water.

Conservation

Within Region III, like elsewhere, water conservation opportunities exist that may reduce both current water use and long-term demand. Conservation alone, however, will not be sufficient to meet the need for sustainable future water supplies. 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.

Reclaimed Water Use

Reuse of treated wastewater and stormwater also comprises a strategy that holds promise for both reducing near term and managing long-term water demand. Water reuse also comprises an alternative water supply as defined in section 373.019, F.S. The Florida Department of Environmental Protection (FDEP) 2006 Reuse Inventory identifies 1.79 MGD of publicly accessible reuse being applied in a manner that offsets existing demands. Current wastewater treatment plant capacity to produce publicly accessible reuse is 9.26 MGD. The current amount of reuse has little or no effect on reducing the demand on potable public supplies; however, public access reuse opportunities exist within industrial areas and established communities, as well as in newly developing areas.

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. However, the availability of reclaimed water for landscape irrigation and other uses will extend the use of, but will not necessarily alleviate additional demand on, potable-quality water supplies during periods of drought. For the purposes of this plan, reclaimed water use is considered a beneficial use when such use reduces overall demand, rather than being discharged through wetlands or sprayed over the surface simply for disposal purposes.

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 7, 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 WATER RESOURCE DEVELOPMENT COMPONENT

Section 373.0831, F.S., describes water resource development as being primarily the role of the water management district. This section of the plan identifies water resource development projects and activities that support development of alternative sources of water supply in Region III.

Water Resource Development Projects

Water resource development projects planned for Region III are described below. Presently anticipated implementation entities and schedules, project objectives, quantities, and funding needs are presented in Table 3.

Hydrologic and Water Quality Data Collection, Monitoring, and Analysis

Implementation of this project in cooperation with Bay County Utilities 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 an alternative inland groundwater source of water supply to serve all Region III communities.

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 III 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 cost effective reuse projects, including those that provide wastewater treated to public access standards and treated stormwater. District staff will also coordinate with FDEP as that agency carries out its 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 Regions II and V and can serve as a model for a conservation outreach program in Region III.

Regional Water Supply Coordination and Technical Assistance

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 III.

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. Approval of a RWSP for Region III initiates state requirements for local governments to more directly link land use and water planning. Local governments are required to amend their local

comprehensive plans to ensure that water supply sources and facilities will be planned and developed as necessary to meet current and future growth management objectives in a manner that is consistent with the RWSP. The comprehensive plans will also be required to incorporate alternative water supply sources and projects as necessary.

Table 3. Summary of Region III Water Resource Development Projects

Project	Responsible Entities	Purpose / Objective	Estimated Quantity (MGD)	Time-frame	Estimated Funding
Hydrologic and Water Quality Data Collection, Monitoring, and Analysis	NWFWMD Bay County	Collect and analyze data to support alternative water supply development	10.0	2007-2012	Through 2008: $1,150,000 2009-2012: $90,000 WMLTF; WPSPTF; Bay Co.
Water Reuse and Conservation Assistance	NWFWMD	Support development and implementation of beneficial reuse and conservation projects that reduce actual demand for potable supplies	TBD	2008-2012	$50,000 WMLTF; WPSPTF
Regional Water Supply Coordination and Technical Assistance	NWFWMD	Program implementation, administration, and oversight; water supply planning coordination with local governments	TBD	2008-2012	$50,000 WMLTF; 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 Resource Development Work Program required by Ch. 373.536, F.S.
TBD - To Be Determined; WPSPTF - Water Protection and Sustainability Program Trust Fund; WMLTF - Water Management Lands Trust Fund

Funding for Water Resource Development

The Water Management Lands Trust Fund (WMLTF) is anticipated to be the primary funding source for water resource development project implementation. The Water Protection and Sustainability Program Trust Fund (WPSPTF) may also be a funding source per section 373.1961(3)(c), F.S. Other potential sources of funding include local governments and utilities, District general revenue funds, legislative grants and appropriations, and other state and federal grant programs.

Identification and Status of Specific Water Resource Development Projects that Support Water Supply Planning and Development

Hydrologic and water quality data collection and analysis were initiated in 2006 by the District at the request of Bay County and concurrence of the District Governing Board. This project was initiated to begin addressing the need for alternative water supply development and concern about the ability of the existing surface water source to continue to meet future demand at all times.

In Bay County, inland test wells have been completed into the Floridan Aquifer at several locations 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 protection goals. The location of the wells is away from major spring runs of the Econfina Creek and away from the coast. The location of the wells is also favorable for long-term security and protection of groundwater supplies withdrawn for public supply.

Water reuse and conservation assistance has the potential to support future alternative water supply planning and development by helping facilitate local beneficial and cost effective reuse projects, including through project identification and scoping.

7 WATER SUPPLY DEVELOPMENT COMPONENT

The District's role in water supply development as defined by Florida Statutes (s. 373.0831) primarily includes planning, supportive water resource development, and providing funding and coordination assistance. The primary role of public suppliers, as defined by statute, is water supply development, including construction, operation, and maintenance of facilities for distribution to end users.

Water Supply Development Projects

Water supply development projects for Region III are described below. Presently anticipated implementation entities and schedules, project objectives, quantities, and funding needs are presented in Table 4.

Inland Ground Water Source Development and Water Supply Source Protection

This project comprises an alternative water supply development project and will provide for development of a detailed engineering analysis and construction of facility components. Infrastructure specifications; cost estimates; alternatives analysis; and construction of inland wells, treatment facilities, transmission lines, and related infrastructure are included in this project. The project includes and facilitates development of an alternative inland source of water supply for Bay County.

Utility Interconnections and Infrastructure Enhancements

This project supports the interconnection of utility infrastructure and transmission of water to suppliers, including necessary system upgrades. Interconnections are an important aspect of efforts to provide for system redundancy, thus reducing the vulnerability of the region to drought. Construction of such facilities to provide for connection to alternative inland ground water sources also comprises alternative water supply development.

Water Reuse Facilities

This project facilitates beneficial reuse of reclaimed water to offset the demand on potable water supplies from irrigation and other non-potable purposes. Qualified projects do not include those only for wastewater treatment and land application disposal. Construction of facilities for beneficial reuse of reclaimed water also comprises alternative water supply development for Region III.

Funding for Alternative Water Supply Development

A primary anticipated funding source for alternative water supply development assistance is WPSPTF, established pursuant to sections 373.1961 and 403.890, F.S. Other potential sources of funding include local governments and utilities, District general revenue funds, Florida Forever capital improvement

funding, the WMLTF, legislative grants and appropriations, and other state and federal grant and loan programs.

Section 373.1961(3), F.S., authorizes the Governing Board to select alternative water supply projects for funding assistance if they are identified or listed within a RWSP. Up to 20% of the funding may also be allocated to projects that are not listed, so long as they are consistent with the goals of a RWSP. The statute also establishes factors that the Governing Board shall give significant weight to, including:

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). Local sponsors of projects receiving funding assistance through the WPSPTF are normally required to provide a minimum of 60% of the required construction funding.

Table 4. Summary of Region III Water Supply Development Projects

Project	Responsible Entities	Purpose / Objective	Estimated Quantity (MGD)	Time-frame	Estimated Funding
Inland Ground Water Source Development and Water Supply Source Protection	Bay County Utilities	Develop inland alternative water supply source to meet future demands and abate risks of salt water intrusion and extreme drought	10.0	2008-2012	$5,200,000 WPSPTF $7,800,000 Local, NWFWMD
Utility Interconnections and Infrastructure Enhancements	Bay County Utilities; other local utilities	Assist with delivery system interconnections and facility improvements	TBD	2008-2012	$TBD WPSPTF; Local Governments; NWFWMD
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	TBD	2008-2012	$TBD WPSPTF; Local Governments; NWFWMD

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; WPSPTF – Water Protection and Sustainability Program Trust Fund

8 IDENTIFICATION OF ALTERNATIVE WATER SUPPLY DEVELOPMENT PROJECTS

All of the water supply development projects identified in Table 4 are interrelated and considered alternative, nontraditional water supply development projects.

9 IDENTIFICATION OF MULTI-JURISDICTIONAL APPROACHES

The multi-jurisdictional approach of the Region III RWSP is through Bay County Utilities as the major supplier of this region. The County works cooperatively with other local governments and utilities, as well as the District. These cooperative efforts are expected to continue to support future alternative water supply development.

Approval of a RWSP for Region III also initiates state requirements for local governments to more directly link land use and water planning, as outlined in sections 373.0361 and 163.3177(6)(c), F.S. To this end, local governments are required to amend their local comprehensive plans within 18 months of approval of the RWSP to meet water needs and incorporate alternative water supply projects as appropriate.

10 RELATIONSHIP OF PROJECTS TO FIVE-YEAR WORK PROGRAM

Consistent with statutory requirements, the District's 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 or water supply development projects are identified by the District and cooperating local governments and utilities in Region III, they will be incorporated into the RWSP process through the annual update of the Work Program.

11 SUMMARY AND RECOMMENDATIONS

This RWSP for Region III identifies alternative water supply sources to meet and exceed identified future water supply needs of Bay County. Development of alternative sources will help to diversify long-term public supply sources, further drought-proof the region, and otherwise ensure the sustainability of regional water resources.

The most significant category of water demand in Bay County is Public Supply (approximately 44% of 2005 water demand). Public water supply demand in Region III was estimated at 28.92 MGD in 2005, with demand projected to nearly double, to 56.94 MGD, by 2030.

The preferred alternative source of new water supplies in Bay County is groundwater from the inland Floridan Aquifer. This alternative supply source is currently planned as meeting up to a 10.0 MGD

increment of future water supply. Project development 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 alternative 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. Water Reuse and Conservation Assistance
3. Regional Water Supply Coordination and Technical Assistance

Water Supply Development Projects

1. Inland Ground Water Source Development and Water Supply Source Protection
2. Utility Interconnections and Infrastructure Enhancements
3. Water Reuse Facilities

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