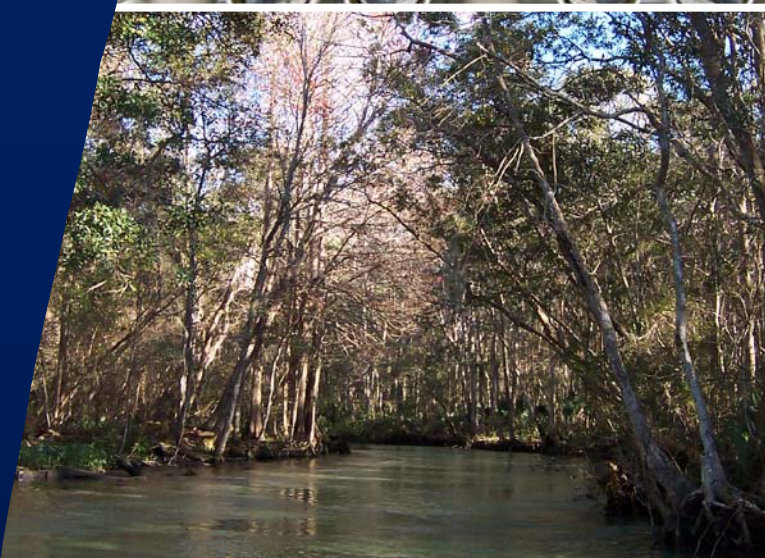


FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

# REGIONAL WATER SUPPLY PLANNING

## Annual Report

DECEMBER 2011





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# INTRODUCTION AND OVERVIEW

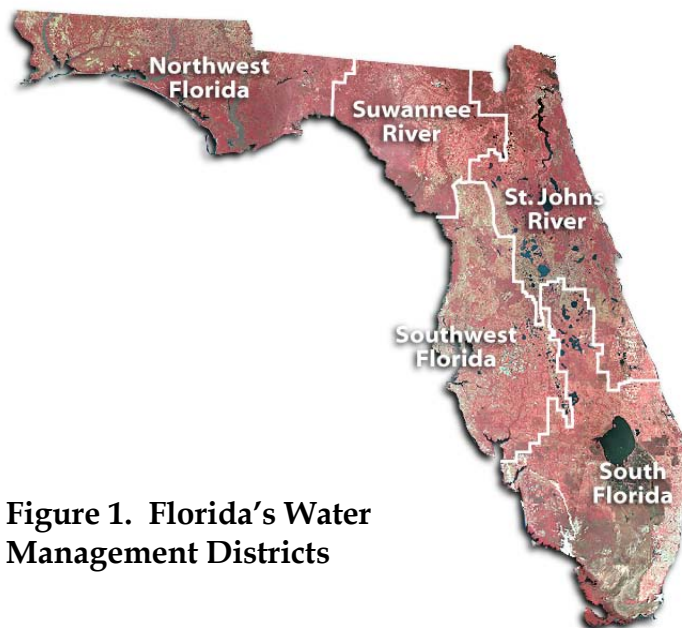
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Florida continues its efforts toward ensuring future water needs are met, while protecting the natural resources of the state. Key highlights of this report include:

- By 2030, Florida’s demand for fresh water is estimated to increase by about 1.9 billion gallons per day (bgd) for a total of 8.2 bgd, and traditional sources of fresh groundwater will not be able to meet all of the additional demand.
- The regional water supply plans that have been developed by the water management districts identify new water supply projects that can, if constructed, produce approximately 2.5 bgd by 2030, more than adequate to meet the currently projected needs.
- In 2005, the Florida Legislature created the Water Protection and Sustainability Program to provide funding assistance to local water suppliers for alternative water supply projects. Currently, 324 alternative water supply projects, which are a subset of all the projects identified in the regional water supply plans, have been selected for funding assistance through the state’s Water Protection and Sustainability Program.
- To date, the construction of these funded alternative water supply projects has already made available approximately 410.5 mgd of “new water” for consumptive use. When all the funded projects are constructed, they are expected to create approximately 731.5 mgd of “new water”, approximately 39% of the projected need.
- Continued efforts on all plan components, including traditional and alternative source development and water conservation, will be required to ensure that supplies are available to meet 2030 demands.

Florida’s water management system is structured to provide sustainable water supply for both people and the environment. This report, prepared by the Florida Department of Environmental Protection (DEP) according to the statutory requirements of sections 373.709(6) and 373.536(6)(a)4, Florida Statutes (F.S.), provides an update on the progress made in planning for the state’s future water supply.



**Figure 1. Florida’s Water Management Districts**

Specifically, the report summarizes the water management districts' progress on their:

- Regional water supply plans (RWSPs),
- Five-year water resource development work programs, and
- Development of alternative water sources through incentive funding provided by the Water Protection and Sustainability Program.

By the year 2030, it is estimated that Floridians will need 1.9 billion gallons of water per day more than in 2005. Although this estimate is less than past projections due to the slower rate of growth experienced over the last several years, the need for additional water is still expected to be substantial. As Florida's population grows, pressure increases on the water resources of the state and the need to ensure that the water use is sustainable for future generations while protecting the environment becomes increasingly important. The Florida Water Resources Act, Chapter 373, Florida Statutes, directs the state's five water management districts (Figure 1) to develop a regional water supply plan for any region where "existing sources of water are not adequate to supply water for all existing and future reasonable-beneficial uses and to sustain the water resources and related natural systems" for 20 years. The plans consider all water use sectors, including public water supply, agricultural irrigation, commercial/industrial use, power generation and recreational/self supply irrigation. These plans are to be updated every five years. Some of the key elements of these plans include:

- A quantification of water needs for all projected uses for a 20-year period.
- A list of traditional and alternative water supply options, from which a local government or other water supplier may choose, that together exceeds the projected 20-year needs.
- An estimate of the amount of water each project will make available.
- The local government or other water supplier recommended to implement each project.
- The estimated timeframe and costs for implementing the project.
- An analysis of funding needs and potential sources of funding.

Regional Water Supply Plans have been developed by the Northwest Florida, St. Johns River, Southwest Florida and South Florida Water Management Districts for regions where existing sources are insufficient to meet projected 20-year demands. These plans currently cover a majority of the state. As required by statute, the plans have identified potential sources of additional water supply, including increased water conservation, new traditional water sources, and alternative water sources, that are more than sufficient to meet 20-year future demand. The Suwannee River Water Management District has

recently identified the need for the development of regional water supply plans in four areas of their district; development of plans for these regions is pending.

Fresh groundwater has traditionally been the primary water supply source in many areas of the state. Recognizing that these sources are nearing their sustainable limits, the development of alternative water supplies, such as reclaimed water, brackish ground and surface water, seawater, and surface water captured during wet-weather flows, is a key component of the water management districts' regional water supply plans and will be essential to meeting future demands. As an incentive to develop alternative water supplies, the 2005 Florida Legislature created the Water Protection and Sustainability Program to provide funding assistance to local water suppliers for alternative water supply projects. Funds provided during the four years of the program, coupled with matching funds from the water management districts and local water suppliers, resulted in the construction of 324 alternative water supply projects. To date, the construction of these alternative water supply projects has made available approximately 410.5 million gallons per day (mgd) of "new water" for consumptive use. Upon completion, all of these projects are expected to provide approximately 731.5 million gallons a day (mgd) of "new water" which is about 39 percent of the total additional demand projected for 2030.

While significant progress in the development of alternative water supplies has been made, continued efforts on all plan components, including traditional and alternative source development and water conservation, will be required to ensure that supplies keep pace with demand over the long term. The following pages describe statewide progress to date, and provide additional detail on the water supply planning efforts of each water management district. The state, water management districts, local governments, and water suppliers must continue to work cooperatively to address the economic, environmental, technical, and intergovernmental coordination challenges for the successful development of sufficient water supplies to meet future needs while sustaining the state's water resources.

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## WATER USE TRENDS

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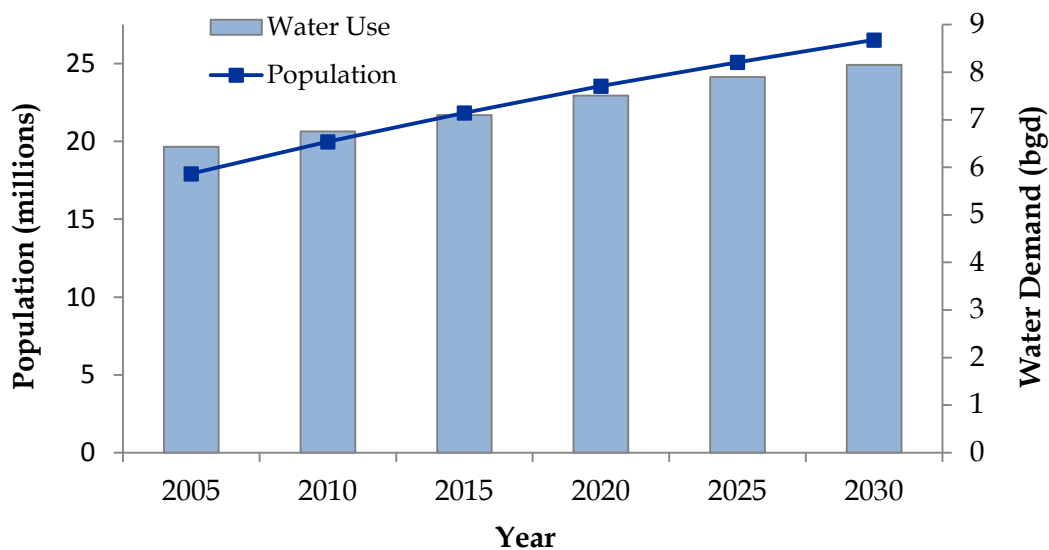
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In 2005, Floridians used an estimated 6.4 billion gallons per day (bgd) of fresh water. This is estimated to increase by about 28 percent to 8.2 bgd a day in 2030 (Figure 2). During this same period, Florida's population is expected to increase by 48 percent, from 17.9 million to approximately 26.5 million. The rate of growth in water use is slower than the rate of population growth due to increased emphasis on water conservation.

Population projections used in the water management districts' regional water supply planning process are based on the University of Florida's Bureau of Economic and Business Research medium projections in accordance with the statutory provisions related to the development of regional water supply plans (s. 373.709, F.S.) Agricultural demand is estimated by projecting the acreage of land expected to be in crop production. Throughout Florida's history, there have been changes in growth trends, but the long term trend is a general increase in population. Since the statute requires the plans to be updated every five years, the water management districts are able to account for these short term variations and to minimize the uncertainties associated with predicting future demands.

Previous demand projections had anticipated that 8.7 bgd would be needed by 2025. The reduced projected demand of 8.2 bgd by 2030 is a result of the ongoing economic downturn and slowing of growth.

**Figure 2. Statewide Demand and Population Projections**

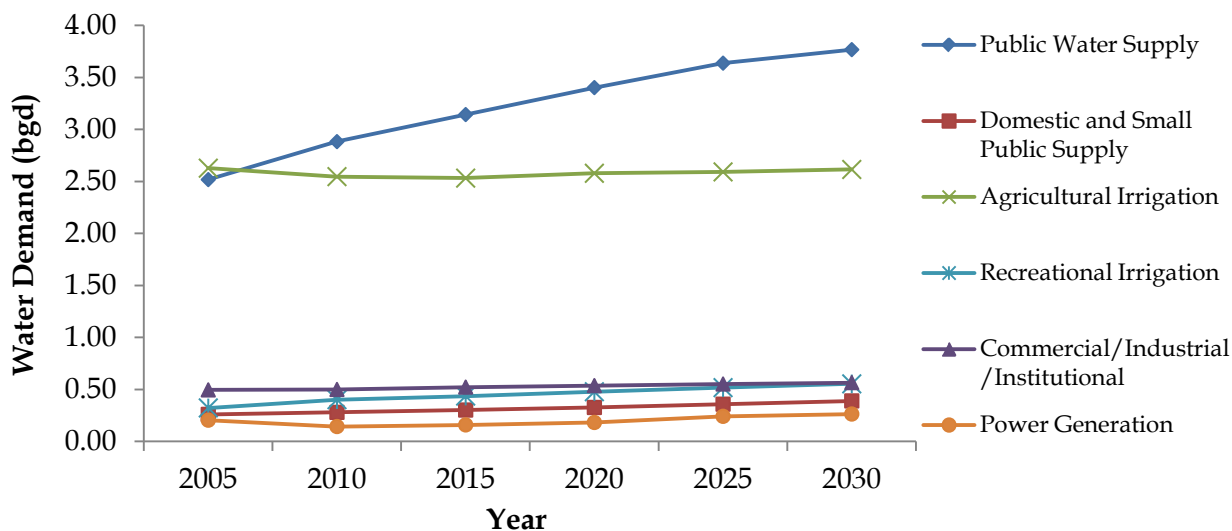




Water demand projections estimate the amount of fresh water needed in the future. In this report, demand differs from withdrawal. Water demand does not account for losses occurring during withdrawal, treatment, or distribution of the water. The demand projections in this report cover the planning period from 2005-2030.

Agricultural irrigation and public supply are by far the largest categories of water use (Figure 3). During the 2005-2030 time period, public supply sector projected demand is expected to increase by over 49 percent and account for the majority of the increase in statewide demand. Agricultural irrigation will decrease by less than 1 percent, due both to reduced acreage in production and agricultural water conservation efforts. The other water use sectors show increasing trends, particularly recreational irrigation and domestic and small public supply (those with demand projections less than 100,000 gallons per day), although the quantities are not large compared to public supply and agriculture.

**Figure 3. Projected Water Demand by Sector**



In recent years, public supply surpassed agricultural irrigation as the highest water use category, but both public supply and agricultural irrigation individually use more water than the other use sectors combined. Therefore, meeting Florida’s water supply and resource protection goals will require continued progress in implementing water conservation programs and improving efficiency in the public supply and agricultural irrigation sectors.

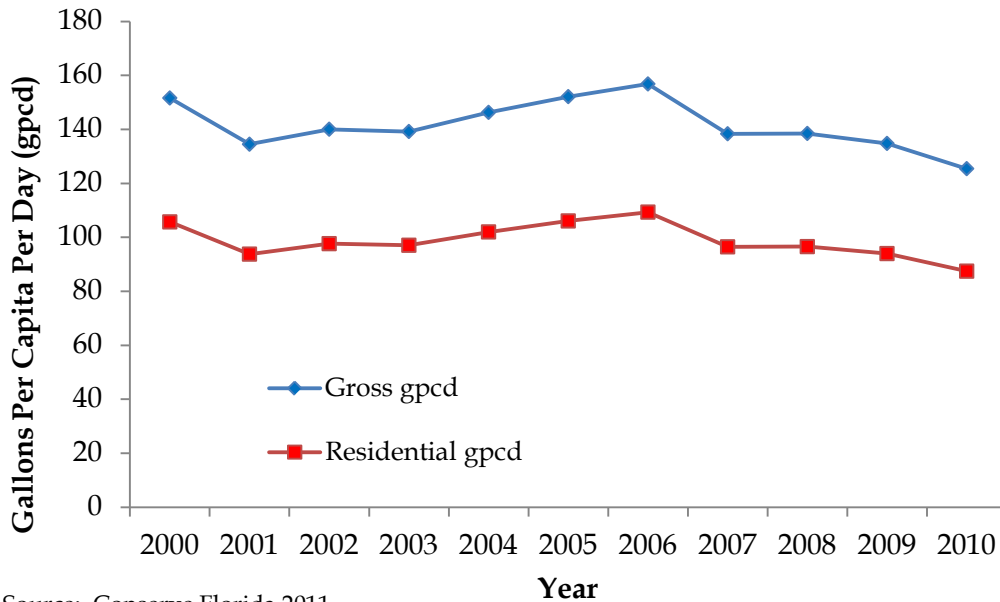
Per capita water use estimates are another means of identifying trends in water use. Per capita estimates are an important tool for identifying how water is being used, projecting

future water demand, targeting water conservation efforts, and assessing the success of water conservation efforts and other water management policies. In the public supply sector, per capita use can be calculated as both a gross measurement and a residential measurement.

In 2008, the Department and the five water management districts developed uniform methods for calculating gross and residential per capita rates to improve reporting consistency. Gross per capita is the total public supply finished water (water ready for delivery to the public) divided by the utility service area residential population. Gross per capita includes all publicly supplied water used for residential, commercial, industrial, and other uses supplied by the utility. Residential per capita measures water delivered for domestic uses only and excludes the other uses of public supply.

The Conserve Florida Water Conservation Clearinghouse used the uniform gross and residential per capita methodologies to assess state-wide changes in per capita between 2000 and 2010 (Figure 4). Statewide in 2000, the gross per capita average was 152 gallons per capita per day (gpcd). In 2010, the gross per capita had dropped to 125 gpcd, a 17 percent reduction. During that same period, the residential per capita average dropped from 106 gpcd to 87 gpcd, nearly 19 percent.

**Figure 4. Per Capita Water Use Trends**



Source: Conserve Florida 2011



Gross and residential per capita water uses have both declined since 2000, with obvious peaks during drought years. These decreases result from the effects of water conservation, water restrictions, the increased use of reclaimed water, and Florida-Friendly landscaping techniques.

Conservation is almost always the most cost effective source of “new water” and is essential to further reducing per capita rates in Florida. The Conserve Florida Water Conservation Clearinghouse was established pursuant to section 373.227, Florida Statutes, to provide information, tools and technical assistance to assist public water supply utilities develop cost-effective water conservation plans tailored to their specific service areas. The Clearinghouse has developed a free on-line conservation tool (EZ Guide) that utilities can use to select an optimal mix of conservation measures and Best Management Practices that will maximize conservation in a way that makes economic sense for their utility. It is recommended that use of this tool become more widespread to select cost-effective conservation projects, further reducing per capita rates and overall water use in the public supply sector.

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## MEETING FUTURE NEEDS

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Regional water supply planning is a major element of Florida's strategy to manage the state's water resources. Section 373.709, F.S., directs the governing boards of the water management districts to conduct water supply planning for any region where they determine that existing sources of water are not adequate to meet existing and future reasonable-beneficial uses and to sustain the water resources and related natural systems for at least a 20-year planning period. For each such area, the districts must identify water resource development and water supply development projects that are sufficient to more than meet projected 20-year demands. Water resource development projects are those to be implemented by the Water Management Districts. They are generally projects that support water supply development and protection of water resources. Alternatively, local water suppliers have the primary responsibility to fund and construct water supply development projects. For each water resource or water supply development project the regional water supply plans (RWSP) should identify the amount of water made available, the costs, the implementation schedule, the implementing entity, and the potential source of funding.

*The planning must be conducted in an open public process, in coordination and cooperation with local governments, regional water supply authorities, government-owned and privately owned water and wastewater utilities, multijurisdictional water supply entities, self-suppliers, reuse utilities, the department, and other affected and interested parties (Section 373.709, F.S.).*

In 2001, the first RWSPs were developed, in accordance with Section 373.709, F.S., by the South Florida, Southwest Florida, St. Johns River, and Northwest Florida Water Management Districts. About every five years these plans have been updated to ensure that the latest demand projections are used in developing the plans, to incorporate new water resource and water supply development projects, to account for any unforeseen impacts to the water resources from existing uses, and to address other factors affecting water supplies, such as socio-economic concerns. Until last year, the Suwannee River Water Management District had identified sufficient sources to meet their needs. During their update of the water supply assessment, the Suwannee River Water Management District determined that four regions of their district cannot rely on traditional sources to meet the 2030 demands and they will need to develop regional water supply plans. For the first time, all five water management districts are in the process of either developing new or updating existing regional water supply plans.

A common theme throughout the state is that reliance on a sole source to meet a region's water needs is not sustainable in the long term. Generally, the best way to meet future demands is to diversify the sources of the region and maximize the degree of

interconnection among sources within that region. The RWSPs include a variety of alternative water supply projects, such as reuse of reclaimed water, brackish groundwater, sea water desalination, surface water, aquifer storage and recovery (ASR), reservoirs, and storm water, many of which will be used in conjunction with exiting traditional sources.

Table 1 provides a summary of the status of the Water Management Districts' Regional Water Supply Plans. By 2030, an additional 1.9 bgd of water will be needed statewide to meet projected demands. Based on the supply options identified in the existing plans, the state should be able to meet these demands through development of both traditional and alternative water supply sources and increased water conservation. In NFWWMD, the plans emphasize shifting the demand from coastal well fields to inland well fields and the development of surface water resources. In the remaining areas of the state, the development of reclaimed water, brackish water sources, and increased storage during wet-weather flows is emphasized. Water conservation is an integral part of all plans. More details regarding the specific plans of Water Management District can be found under the "Regional Water Supply Planning" section of this report.

**Table 1. Status of Regional Water Supply Plans**

Water Management District/Planning Region	Anticipated Plan Completion Date	2005-2030 Net Change in Demand (mgd)	Potential Water From RWSP Projects (mgd)
<b>Northwest Florida WMD</b>			
Region II (Santa Rosa, Okaloosa, Walton Counties)	2012	26	57
Region III (Bay County)	2013	36	TBD
Region V (Gulf, Franklin Counties)	2012	4	9
Regions I, IV, VI, and VII	Not Needed	84	Sources Sufficient
<b>NFWWMD Sub-total</b>		<b>150</b>	<b>65</b>
<b>Suwannee River WMD</b>			
Alapaha River Basin	Pending	TBD	TBD
Lower Santa Fe River Basin	Pending	TBD	TBD
Upper Santa Fe River Basin	2011	TBD	TBD
Upper Suwannee River Region	Pending	TBD	TBD
<b>SRWMD Sub-total</b> (entire District)		<b>34</b>	Plans Pending
<b>St. Johns River WMD</b>			
Districtwide	2014	<b>374</b>	<b>378</b>
<b>Southwest Florida WMD</b>			
Northern	2011*	90	242
Tampa Bay	2011*	112	238
Heartland	2011*	98	124
Southern	2011*	66	334
<b>SWFWMD Sub-total</b>		<b>366</b>	<b>938</b>
<b>South Florida WMD</b>			
Kissimmee Basin	2013	114	234
Upper East Coast	2011*	79	93
Lower East Coast	2013	433	565
Lower West Coast	2012	313	220
<b>SFWWMD Sub-total</b>		<b>939</b>	<b>1,112</b>
<b>Statewide Total</b>		<b>1,863</b>	<b>2,493</b>

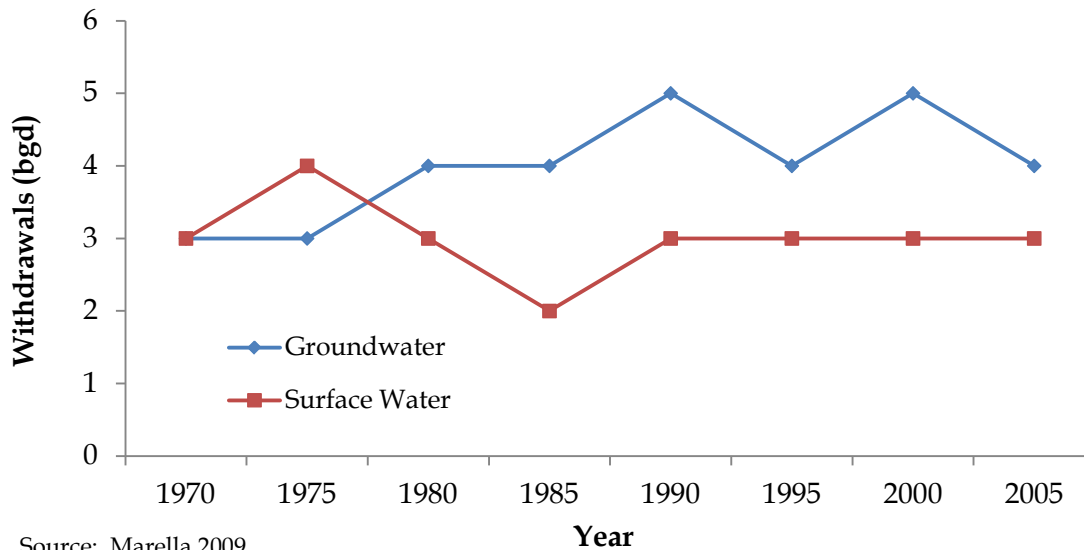
Note \* = plan already adopted by Governing Board

TBD = To Be Determined

## Developing Alternative Water Supplies

The regional water supply plans promote source diversification to create a water supply system that is more reliable than a system that relies on a single source of supply. Most of Florida has traditionally relied on fresh groundwater (Figure 5) to meet demands for potable water, agricultural irrigation, commercial and industrial uses, landscape irrigation, and other uses. Supplies of fresh, inexpensively treated groundwater are increasingly limited in many parts of the state.

**Figure 5. Historical Fresh Water Withdrawals**



A significant part of the solution to meeting future water needs in a sustainable manner is the development of alternative water supplies. While the primary responsibility for funding construction of new water supplies lies with local water suppliers (s. 373.705(1)(b), F.S.), the 2005 Florida Legislature recognized the need to promote the timely development of alternative water supplies, and created the Water Protection and Sustainability Program. Under this program, state funds, along with matching water management district funds, were awarded as grants to local water suppliers for alternative water supply construction (Table 2). Florida Statutes do not require the Suwannee River and Northwest Florida Water Management Districts to provide matching funds.

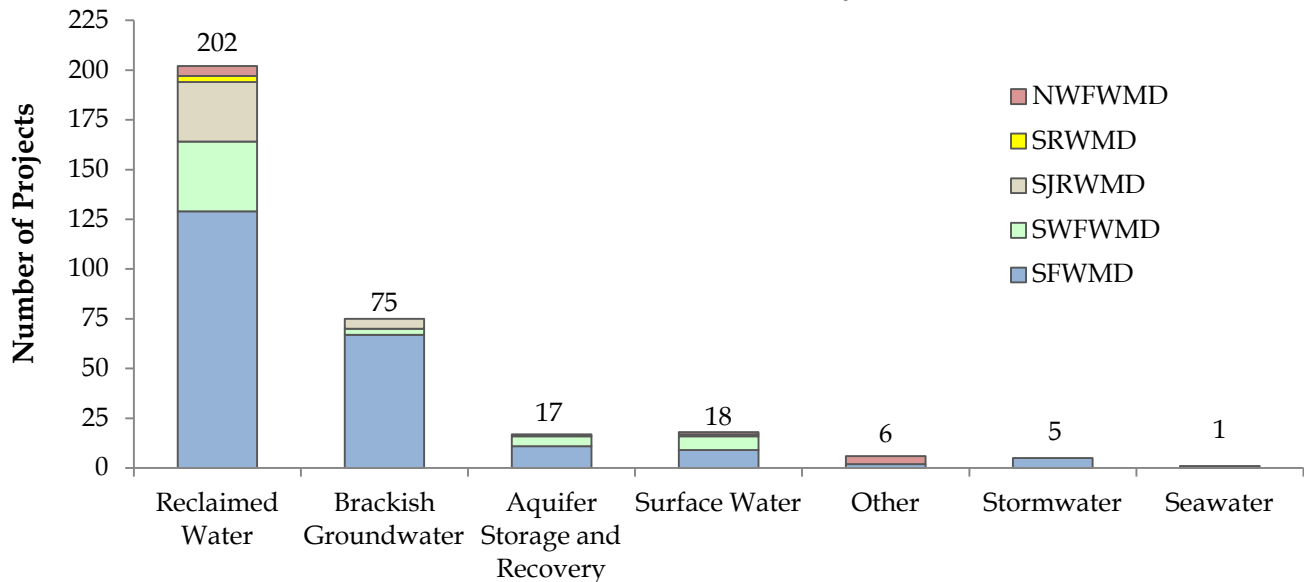
During the four years that the Water Protection and Sustainability Program received legislative appropriations, the water management districts provided funding assistance to local water suppliers to be applied toward the construction of 327 projects. These projects met state priorities, were cost effective, and technically feasible. Budget

**Table 2. State Funding Distributions for Alternative Water Supply Development through the Water Protection and Sustainability Program**

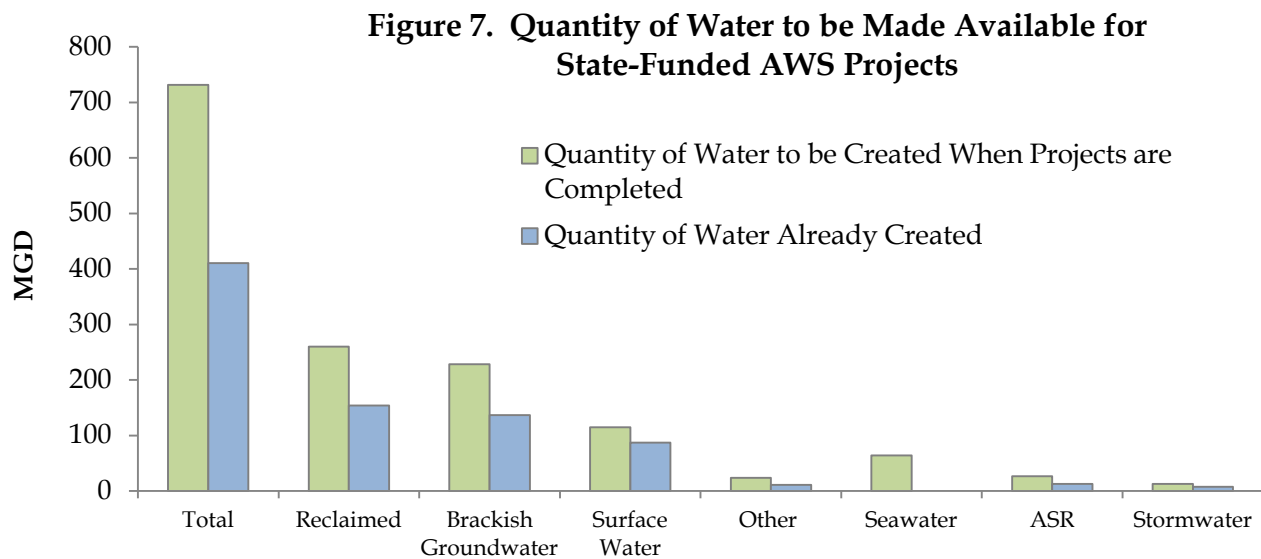
Water Management District	FY 2005 - 2006 (\$ millions)	FY 2006 - 2007 (\$ millions)	FY 2007- 2008 (\$ millions)	FY 2008 - 2009 (\$ millions)
South Florida	30	18	15.6	4.25
Southwest Florida	25	15	13.0	0.75
St. Johns River	25	15	13.0	0.00
Suwannee River	10	6	5.2	0.27
Northwest Florida	10	6	5.2	0.27
<b>Total</b>	<b>100</b>	<b>60</b>	<b>52.0</b>	<b>5.54</b>

constraints at the local level have resulted in cancellation of some projects not already under construction, reducing the number of projects currently funded by the program to 324. Figure 6 shows that approximately 62 percent of the projects funded were reclaimed water projects. Reclaimed water projects are a key element of RWSPs, and are important to sustainable management of water resources. The next most common group of projects funded were brackish groundwater projects, which comprised approximately 23 percent of the total.

**Figure 6. Alternative Water Supply Projects Funded through the Water Protection and Sustainability Trust Fund**



The projects funded by the program may involve multiple phases over several years, and in some cases additional water is brought on line incrementally with each phase. To date, the construction of many of these alternative water supply projects has made available approximately 410.5 million gallons per day (mgd) of “new water” for consumptive use. The districts estimate that when construction of all currently planned alternative water supply projects under this program is complete they will help create approximately 731.5 mgd of “new water” available for consumptive use (Figure 7), which is about 39 percent of the additional 1.9 bgd of water supply projects identified by the districts to meet 2030 demands. Reclaimed water projects are expected to produce the largest amount of water, approximately 260 mgd. That is about 14 percent of the additional water needed by 2030.



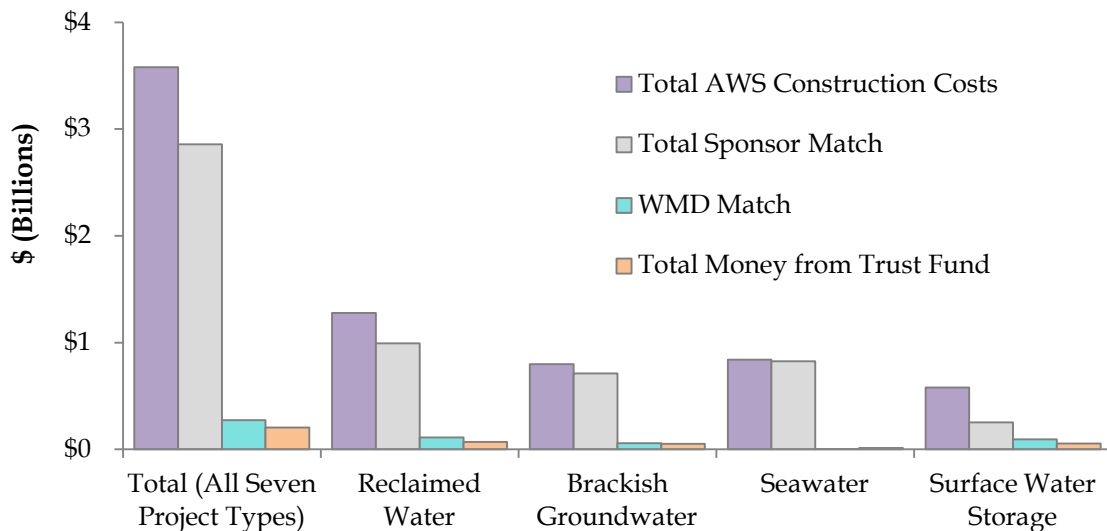
Brackish groundwater projects are expected to produce the next largest amount of water, approximately 229 mgd. That is about 11 percent of the additional water needed by 2030.

The total construction costs of the projects selected for funding assistance are approximately \$3.6 billion (Figure 8). The Water Protection and Sustainability Program, including the match provided by the water management districts, has provided about \$475 million for alternative water supply projects. This represents about 13 percent of the total construction costs. The statute requires, in most cases, that the local sponsor ultimately be responsible for at least 60



percent of the total project construction costs.<sup>1</sup> The water suppliers have committed to providing about \$2.9 billion toward construction of these projects, which represents about 80 percent of the total. The remaining small percentage of funding was provided from other sources outside of the Water Protection and Sustainability Program.

**Figure 8. Total AWS Project Costs and Costs for Four Selected Project Types**



In addition to total costs, Figure 8 shows the cost breakdown for the four types of projects with the highest construction costs. The estimated costs for reclaimed water projects are \$1.3 billion and account for approximately 36 percent of the construction costs for all the alternative water supply projects.

It should be noted that projects funded through the Water Protection and Sustainability Program are only a subset of the total water supply projects identified by the districts to meet 2030 demands. In the four years of the program, approximately 39 percent of the water needed for the next 20 years will be made available. The program has been successful in providing incentives to begin the construction of alternative water supplies. However, many more alternative water supply projects identified in the regional water supply plans will need to be constructed in order to meet the remaining 2030 demand.

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<sup>1</sup> The total construction costs are reported for the life of the project which may have been funded before the Water Protection and Sustainability Program started. Additionally, some projects receive funds from other sources, which is why the total of sponsor match, WMD match, and Water Protection and Sustainability Program match may not equal total construction costs.

Additional funding assistance for alternative water supply projects has also been available through the Department's State Revolving Fund (SRF) program. This program, under agreements with the U.S. Environmental Protection Agency, provides low-interest financing to plan, design and build wastewater, stormwater, and drinking water systems. Funded by federal capitalization grants, state matching funds, loan repayments, interest earnings, and periodic bond issues, SRF loans are offered at interest rates substantially below current market rates and help make loans affordable. Repayments from earlier loans are used to make new loans, allowing the program to operate in perpetuity.

Since 1989, Florida has invested more than \$3.8 billion to upgrade and improve water and wastewater facilities and clean up stormwater pollution. For FY2011, the Drinking Water and Clean Water SRF programs committed \$235.8 million to infrastructure projects. A significant portion of this funding is being used by Florida communities to build alternative water supply projects. Last year, 14 percent or \$33.1 million from the State Revolving Fund was committed to alternative water supply projects.

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# REGIONAL WATER SUPPLY PLANNING

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Regional water supply planning is a major element of Florida’s strategy to manage the state’s water resources. Section 373.709, F.S., directs the governing boards of the water management districts to conduct water supply planning for any region where they determine that existing sources of water are not adequate to meet existing and future reasonable-beneficial uses and to sustain the water resources and related natural systems for at least a 20-year planning period. For each such area, the districts must identify sufficient additional sources to more than meet projected 20-year demands. This section of the report describes the districts’ progress over the last year in implementing their Regional Water Supply Plans.

## ***NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT***

In 2008, the district updated its Water Supply Assessment (approved May 2009). The assessment updated the district’s water demand projections and evaluation of sources through 2030. The 2008 assessment concluded that no additional plans are required, and that water supply planning and implementation efforts should continue in Regions II, III, and V.

**Figure 9. NFWMD Planning Regions**



In 2005, water use in the District was about 347 mgd. By 2030, water use in the District is expected to increase by about 43 percent to about 496 mgd.

## **REGIONAL WATER SUPPLY PLANS**

The Northwest Florida Water Management District has developed regional water supply plans for Regions II, III and V, which include Santa Rosa, Okaloosa, Walton, Bay, Gulf and Franklin Counties (Figure 9). In addition to projects identified for the specific planning

regions, the District is developing a district-wide reuse plan which will be completed in 2012.

#### Region II (Santa Rosa, Okaloosa, and Walton Counties)

The 2030 demands in this region are expected to increase by approximately 32 mgd. The largest use in this region is Public Supply, which will continue in the future. Over \$34 million dollars of District, state, local, and federal funding has been used to implement the projects identified in the plan. In 2010, the District conducted planning and project prioritization for its coastal water systems interconnection initiative. The district will work with coastal utilities to develop interconnection plans that will increase the resistance to droughts, major storms, and other contingencies.

Work on alternative water supply projects continues. The district has identified several alternative water supply development projects which are expected to provide about 57 mgd of water, 15 mgd of which have been developed. The Inland Floridan Aquifer project serving Walton County (9 MGD) has been completed, and 6.1 mgd of the 18 mgd Inland Sand and Gravel Aquifer project serving Santa Rosa County is complete. Additional projects include an offline reservoir and reuse of reclaimed water. The District anticipates updating this plan in January 2012.

#### Region III (Bay County)

The 2030 demands in this region are expected to increase by approximately 36 mgd. The largest use in this region is Public Supply, which will continue in the future. The primary focus of this plan is to diversify sources for public water supply, which will reduce threats from salt water intrusion in the Deer Point Reservoir, and the coastal Floridan Aquifer. Over 16 million dollars of district, state, and local funds have been allocated to implement projects in this region. Of that, the District has spent approximately \$1.1 million. The primary project for this region is the Inland Groundwater Source Development and Water Supply Source Protection project, which is expected to make about 10 mgd of water available. Additional projects include utility interconnections and water reuse facilities. Remaining demands can be met through existing sources. The District anticipates updating this plan in 2013.

#### Region V (Gulf and Franklin Counties)

The 2030 demands in this region are expected to increase by approximately 4 mgd. The largest use in this region is Public Supply, which will continue in the future. The principal resource issue is the potential for saltwater intrusion in the upper portion of the Floridan Aquifer resulting from a decline in the potentiometric surface of the aquifer due to groundwater withdrawals. Over \$17 million dollars of District, state, local, and federal

funding has been used to implement the projects, primarily for the Port St. Joe surface water project, identified in the plan.

The primary projects include the development of a surface water supply system for the city of Port St. Joe and development of an inland alternative water supply source for Franklin County. The Port St. Joe project is complete, and approximately 6 mgd of water have been made available as a result. Evaluation of an inland water supply source for Franklin County has been completed. Approximately 3 mgd may be available from this source if future water demands dictate. Thus far, over \$17 million in District, state, and local funding have been expended for development of alternative water supplies in the region, primarily for development of the Port St. Joe surface water supply source. The District anticipates updating this plan in 2012.

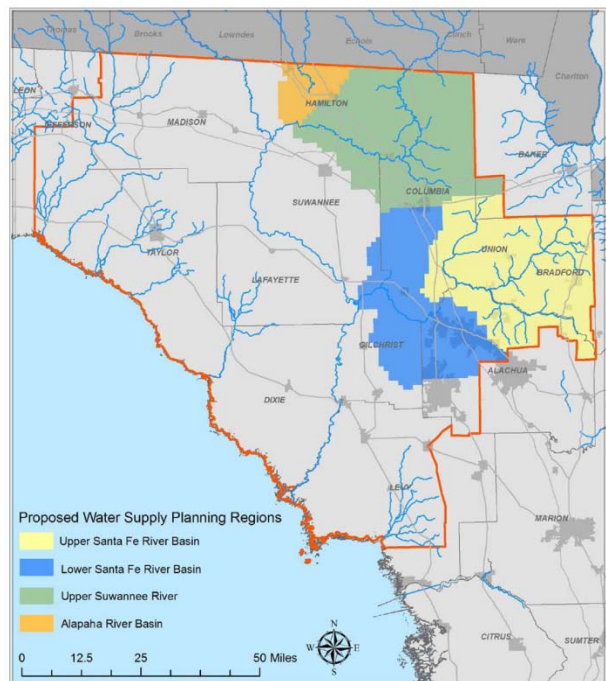
### ***SUWANNEE RIVER WATER MANAGEMENT DISTRICT***

The Suwannee River Water Management District completed a District Water Supply Assessment in 2010 that identified the need for regional water supply planning in four regions of the district: the Upper Santa Fe River Basin, Lower Santa Fe River Basin, Upper Suwannee River Basin, and the Alapaha River Basin (Figure 10). In 2005, water use in the District was approximately 236 mgd. By 2030, water use in the District is expected to increase by about 15 percent to approximately 271 mgd. Agricultural irrigation is the largest use.

### **REGIONAL WATER SUPPLY PLANS**

The district has completed a draft regional water supply plan for the Upper Santa Fe River Basin. Preliminary findings indicate that the Upper Santa Fe River Basin has experienced a significant decline in the potentiometric surface of the aquifer and will require a recovery strategy to ensure that existing and future needs can be met while protecting the environment. Groundwater withdrawals in both the Suwannee River and St. Johns River water management districts may influence the aquifer and related natural resources in this region. Therefore, the two districts are coordinating to determine the causes and full extent of the problem, and develop a strategy for recovery of the resource. Due to the rural and agricultural demographics of the region, the ability to develop

**Figure 10. SRWMD Planning Regions**



alternative supplies is limited, and it is expected that conservation will be the primary means available within the SRWMD to recover flows in the Upper Santa Fe River Basin.

All previously funded alternative water supply projects are complete. There were no alternative water supply projects funded in the past year, and none are proposed for funding in fiscal year 2012. However, SRWMD continues to work in partnership with agricultural water users on water conservation programs.

**ST. JOHNS RIVER WATER MANAGEMENT DISTRICT**

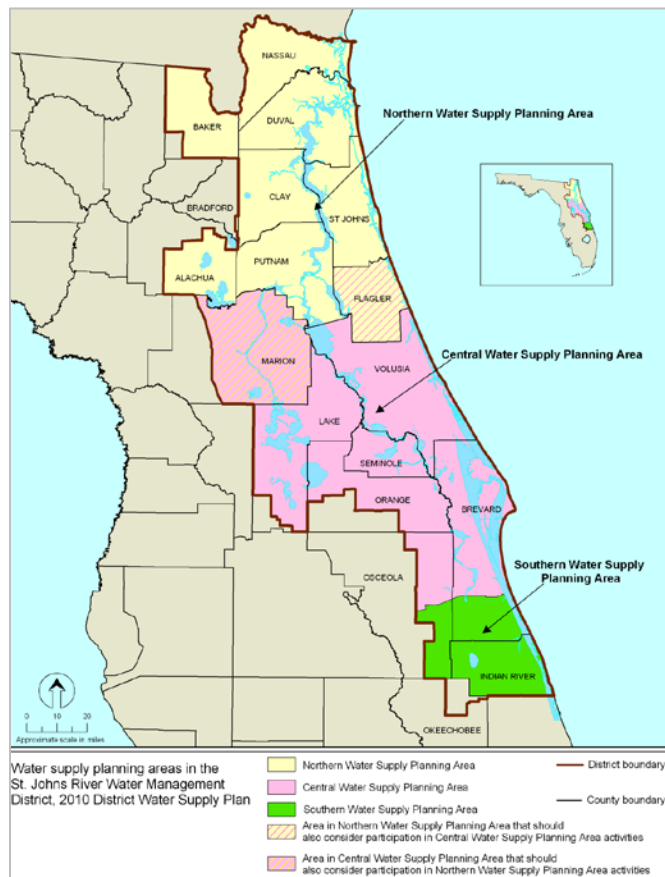
During 2010, the St. Johns River Water Management District continued to implement its 2005 District Water Supply Plan.

Following extensive public outreach, SJRWMD has prepared a draft 2010 Water Supply Assessment and draft 2010 Regional Water Supply Plan. Figure 11 depicts the district’s water supply planning regions. In 2005, water use in the District was approximately 1,207 mgd. By 2030, it is expected to increase by about 31 percent to approximately 1,580 mgd. Public water supply is the largest water use sector.

**REGIONAL WATER SUPPLY PLANS**

The draft RWSP is incomplete, but the population and water demand projections, along with chapters on water conservation, minimum flows and levels, and water supply development project options are posted on the district’s website. A key finding is that traditional groundwater sources are at or below their sustainable levels and recovery and prevention strategies will be needed in six areas to ensure that existing and future water demands can be met while protecting the environment. As a result, the district has begun the development of recovery and prevention strategies, which will include a consideration of the development of alternative water supplies if needed to reduce groundwater withdrawals.

**Figure 11. SJRWMD Planning Regions**



Inter-district water supply planning coordination is ongoing in three key areas: the Central Florida Water Initiative (SJRWMD, SWFWMD, SFWMD); for areas along the shared boundaries in Lake and Marion counties (SJRWMD, SWFWMD); and for the Northeast Florida Water Supply Planning Area (SJRWMD, SRWMD).

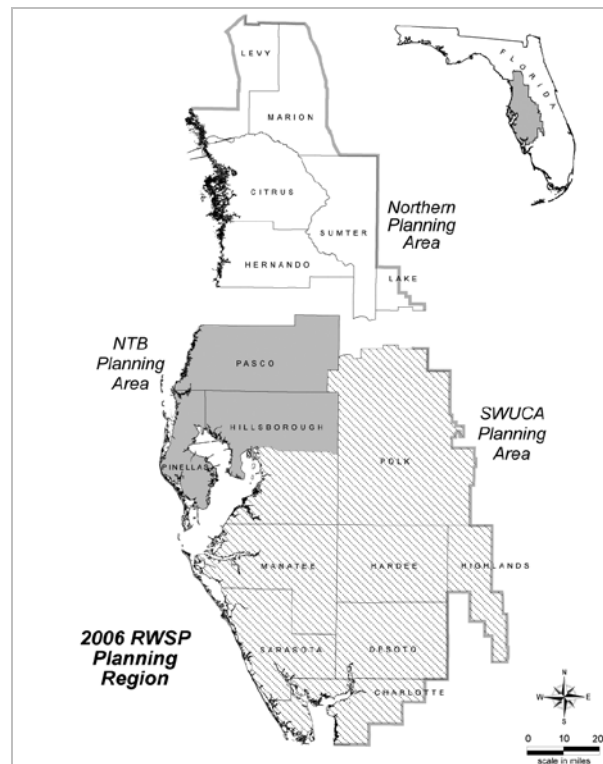
Notable water supply projects completed or underway include:

- **Yankee Lake Project:** a 10 million gallon per day (mgd) project to treat brackish water from the St. Johns River near Yankee Lake in Seminole County to augment reclaimed water supplies.
- **Deland Reclaimed Water and Surface Water Augmentation Project:** a 2 mgd project to treat brackish water from the St. Johns River to supplement the City's reclaimed water system.
- **North Seminole Regional Reclaimed Water and Surface Water Optimization Project:** a project to treat surface water from Lake Monroe and expand reclaimed water infrastructure to deliver approximately 7.8 mgd of reclaimed water to customers in northern Seminole county.
- **Winter Garden Reclaimed Water Pumping and Transmission Project:** a 4 mgd project to expand the availability of reclaimed water for commercial and residential landscaping in Winter Garden. The project also included an interconnection to the City of Ocoee to extend reclaimed water service to several large developments in that area.

### ***SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT***

During the past year, the district continued progress on implementing its 2006 Regional Water Supply Plan, which covered a 10-county planning region from Pasco County south to Charlotte County and inland to Polk and Highlands Counties. On July 26, 2011, the SWFWMD Governing Board approved the latest updated Regional Water Supply Plan. The plan now includes the entire 16-county District (Figure 12).

**Figure 12. SWFWMD Planning Regions**





With major capital projects completed in previous years and projected growth in demand slowing in response to the economic downturn, demand management has been a high priority. Twenty-nine new conservation and reclaimed water projects were funded throughout the district in fiscal years 2009-10 and 2010-11, with nineteen new projects proposed for funding in fiscal year 2011-12. Conservation and reuse projects in the past year resulted in potable water savings of over 3.1 mgd.

Forty projects in the Facilitating Agricultural Resource Management Systems (FARMS) cost-share program were approved in fiscal year 2010-11 and are expected to offset 2.57 mgd of groundwater use, for a cumulative total of 17.8 mgd for the program. The district also continues to fund regional interconnect projects and feasibility studies to define the potential of innovative approaches such as reclaimed water recharge and alternative sources such as the lower Floridan Aquifer. Some other highlights include:

- Completion of a six billion gallon, above ground reservoir and expansion of the surface water treatment facilities from a capacity of 24 to 48 mgd for the Peace River Manasota Regional Water Supply Authority.
- The Tampa Bay Water's (TBW) System Configuration II project is expected to be completed in 2011, adding 25 mgd of capacity to the Enhanced Surface Water System.
- Provided funding assistance for the TECO SW Polk Power Station Reuse project that will provide reclaimed water for the expansion of an important regional energy facility.
- Work continued on the lake level modification project on Lake Hancock in Polk County, which is a key initiative to restore minimum flows to the upper Peace River and avoid severe cutbacks in regional groundwater withdrawals.
- Also at Lake Hancock, the outfall treatment project will substantially reduce nutrient loads into the Peace River and Charlotte Harbor.
- The District established nine additional minimum flows or levels (MFLs) in the past year and funded projects to implement MFL recovery strategies for the Northern Tampa Bay and Southern Water Use Caution Areas and the Lower Hillsborough River.

## ***SOUTH FLORIDA WATER MANAGEMENT DISTRICT***

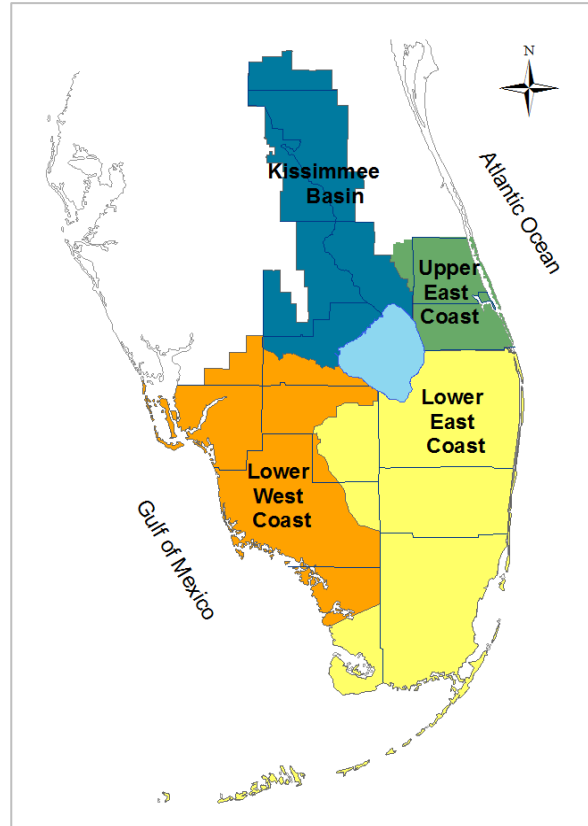
The South Florida Water Management District (SFWMD) has adopted plans for each of its four planning regions (Figure 13). The Upper East Coast Plan Update was approved by the Governing Board in March 2011. Work has begun on the update of the Lower East Coast Plan. The Kissimmee Basin is within the Central Florida Water Initiative, an effort aimed at coordinating the water supply planning activities of the SFWMD, SJRWMD, and SWFWMD in central Florida. The district's year-round conservation rule, a component of the Comprehensive Water Conservation Program, was adopted in 2010. Significant water resource development projects, which are estimated to produce approximately 100 mgd are being investigated for feasibility.

In the 2006 water supply plans and subsequent Ten-Year Facility Work Plans, the district and utilities have identified sufficient projects to meet projected demands. Emphasis will be on increased water conservation, development of alternative water supplies, reuse and increased storage.

The 2008 Ocean Outfall Act requires six utilities to submit detailed plans by 2013 for how they will meet the 2018 and 2025 requirements for eliminating ocean disposal of wastewater. When completed, those plans will be incorporated into the Lower East Coast Regional Water Supply Plan. Approximately 180 mgd of reclaimed water will result from implementation of those plans.

Through the Water Protection and Sustainability Trust Fund, the district has selected 223 projects for funding. When construction is completed, these projects will make approximately 403 mgd of water available. Other specific projects identified in the regional water supply plan mostly support the development of water resources and include:

**Figure 13. SFWMD Planning Regions**



- Initiated a feasibility study of the potential of the C-51 Reservoir Project to meet future water demands.
- Initiated studies of the potential of the Upper and Lower Floridan Aquifers in the Central Florida Area. Two wells were constructed in 2011 and additional work is ongoing.
- Completed peer review of the East Coast Floridan Aquifer Model.
- Continued Central Florida Water Initiative studies in cooperation with the St. Johns River and the Southwest Florida Water Management Districts.
- Completed studies related to water resources in St Lucie and Indian River Counties.
- Completed a Water Desalination Concentration Management Study.
- Completed digital elevations models to update topography used to evaluate sea-level rise and as input for regional water supply planning.
- Completed saltwater interface maps for surficial aquifers in St. Lucie, Martin, Palm Beach, Broward, Lee, and Collier Counties.

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## **WATER RESOURCE DEVELOPMENT WORK PROGRAMS**

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The regional water supply plans identify both water supply development and water resource development projects to meet the 20-year projected demands. Generally, water supply development projects discussed previously in this report are the primary responsibility of local water suppliers. Water resource development projects are generally the primary responsibility of the Water Management Districts, and generally speaking, include larger projects that focus on supporting water supply development at the regional and local level, as well as assuring the long term availability of adequate water supplies.

Water resource development has a rather lengthy statutory definition, but in essence, it means water management activities that assist the water management districts, local governments, and water suppliers to better manage and protect the state's water resources. It includes collection and evaluation of surface and groundwater data necessary to developing water supply decisions, programs to manage water resources, public works projects for flood control and water storage, regional storage projects, utility interconnections, water conservation programs, and technical assistance to local governments and utilities.

The water resource development component of the regional water supply plan should include:

- A list of water resource development projects that support water supply development.
- An estimate of the water each project will make available, the timeframe and cost of the project, a funding strategy, and the local government or other water supplier recommended to implement it.
- Any established minimum flows or levels (MFL) in the planning region, any MFL recovery or prevention strategies, and any reservations of water adopted by rule pursuant to section 373.223(4).

The types of water resource development projects found in the plans vary according to the needs of each region. For example, in areas where traditional sources appear to be nearing their sustainable limits, the water resource development project might focus on information gathering and model development to quantify the sustainable limits of the existing sources and identify and quantify alternative sources for new water supply development. In areas where the limits of existing sources are known, water resource development projects might include the development of large regional reservoirs to

increase available supplies, or utility interconnects to improve regional water source reliability. These projects generally benefit a large area and multiple users, rather than a single utility.

Each year, after the adoption their budget, the water management districts prepare a Five-Year Water Resource Development Work Program which describes the districts' implementation of the water resource development portion of their regional water supply plans. The Department reviewed the current work plans of each district and found that they were consistent with the regional water supply plans and that the expenditures included were adequate to support the districts' water resource development responsibilities.

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## **SUMMARY**

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While the ongoing economic downturn has slowed growth and the related demand for additional water, by 2030, Florida is still expected to need an additional 1.9 bgd over 2005 demands. Most of the growth in demand will be in the public water supply sector. The regional water supply plans prepared by the Northwest Florida, St. Johns River, Southwest Florida, and South Florida Water Management Districts have identified conservation measures and additional traditional and alternative water supply sources more than sufficient to meet that demand. The Suwannee River Water Management District has recently determined that four additional regions in their district cannot rely on traditional supply sources, and water supply plans will need to be developed for these regions.

Significant progress has been made in identifying and implementing projects in the regional water supply plans - however continued efforts on all plan components, including traditional and alternative source development, water conservation, and interconnections among water sources will be required to ensure that supplies keep pace with demand over the long term. The state, water management districts, local governments, and water suppliers will need to continue to work cooperatively to address the economic, environmental, technical, and intergovernmental coordination challenges to the successful development of sufficient water supplies to meet future needs while sustaining the state's water resources.

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## REFERENCES

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