

Southern Water Use Caution Area



Information Report

April 1998



Protecting Your
Water Resources

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Southern Water Use Caution Area Information Report

Executive Summary

This report provides a concise summary of the history, current conditions and future plans for the Southern Water Use Caution Area (SWUCA) within the Southwest Florida Water Management District (SWFWMD, or the District). It describes the background leading to the designation of the area, management activities such as the SWUCA Rule and challenges to it, where the District is today in its planning and the approach to assuring water resource management and protection.

The SWUCA was declared a “water use caution area” (where water resources are or will become critical in the next twenty years) in 1992 by the District Governing Board, encompassing an area of about 5,100 square miles covering the southern half of the District. It includes all of Manatee, Sarasota, Hardee and DeSoto counties and portions of Hillsborough, Charlotte, Polk and Highlands counties. Water resource concerns associated with the SWUCA involve the decline of lake levels along the Highlands Ridge and advancing coastal saltwater intrusion in the Floridan Aquifer.

Section III, **Hydrologic Overview**, identifies the Floridan Aquifer as the system of concern; about 85 percent of ground water use in the SWUCA comes from this source. Analysis of long-term trends, including data from an extensive network of monitor wells that assess ground water levels and quality, show the

problem is regional in nature. In other words, withdrawals at a single point in the SWUCA may affect water levels over large areas. Historic over-withdrawals have reduced water pressure in the aquifer, causing lake levels to decline in the Ridge area as recharge is induced, and allowing seawater to intrude into the Floridan Aquifer along the coast.

Section IV, **Water Use in the SWUCA**, shows that 80–90 percent of total water use in the basin is for four major uses; citrus, row crops (especially tomatoes), mining and public supply. In recent years, the actual water pumped and used has been below the 650–700 million gallons per day (mgd) the District has identified as the approximate sustainable amount the aquifer can yield. Water use dropped each year from 1991–95, averaging 616 mgd, while 1996 use was up about ten percent over the prior year. Current projections to 2020 indicate water use will be about 760 mgd, creating the likely need for 50 to 100 mgd from alternative sources to meet projected demands.

Objectives of **The 1994 SWUCA Rule** (Section V) were: 1) to preserve freshwater resources of the Floridan Aquifer and stabilize lake levels in Polk/Highlands counties, and 2) to limit regulatory impacts on the region’s economy and existing users. A fundamental aspect of the SWUCA Rule was the Board’s recognition that water resource problems developed over the long-term and could not be corrected immediately without serious socioeconomic impacts. The principal concept of the rules was to gradually reduce existing withdrawals while not allowing new withdrawals, and building in a mechanism (reallocation) to redistribute existing permitted

quantities to new uses and locations within the SWUCA. In March, 1997, the District received the administrative law judge's Final Order upholding the Minimum Floridan Aquifer Level (and the science used to establish it) and the phasing in of conservation, but ruling provisions for reallocation and preferential treatment of existing users invalid. As of the end of 1997, the Final Order is stayed and has no effect because the District and other parties have appealed the ruling to the Second District Court of Appeals. This means the SWUCA Rule cannot go into effect until the appeal is resolved.

The Future of SWUCA (Section VI) begins with the recognition that the need for specialized water resource management in the area continues. Seeing a window of opportunity created by changing circumstances, the Governing Board has directed staff to reevaluate the situation. These circumstances include only portions of the SWUCA Rule being upheld, temporarily improved water resource conditions (lower water use and higher ground water levels) and the 1997 legislation on minimum flows and levels that allows a "recovery strategy" if an actual level is below an established minimum level.

The District took several actions during 1997 to initiate an effective reevaluation of SWUCA conditions and management. Included were a statewide Discussion Group to identify alternative approaches, public workshops in Bartow and Bradenton to brief the public and seek feedback and formation of a SWUCA Staff Team with a broad charge to revisit previous management efforts.

The District's overall strategy will include both short and long-term aspects, and will attempt to balance regulation with technical and financial incentives (e.g., implementation of a minimum aquifer level with water resource development for alternatives to ground water use) while closely monitoring water use, water levels and water quality. The intent is to achieve effective resource protection without negatively affecting the local economy. In the short term, the District will:

- continue to use existing water use permitting rules for the Eastern Tampa Bay (ETB) and Highland Ridge (HR) Water Use Caution Areas (WUCAs).
- develop and adopt a "Competing Applications Rule" which will allow the Governing Board to determine which permits are most in the public interest.
- develop a revised SWUCA Rule as part of an overall management strategy.
- appeal three specific components of the SWUCA ruling.
- continue forward with water supply planning efforts such as the "Districtwide Assessment" and a subsequent "Regional Water Supply Plan" for the SWUCA.
- establish an outreach program to reengage the affected and interested public.

Long-term strategies will follow, including implementation of the revised SWUCA rule and associated minimum levels as part of an overall recovery strategy, using the Competing Applications Rule as needed. Continuous improvement of a detailed monitoring system to identify trends and refine our understanding of the resource will be coupled with a commitment to develop alternative water supply sources, including but not limited to, reuse of stormwater and wastewater, aquifer storage/recovery, sustainable use of surface water and water conservation.

In conclusion, years of data collection and scientific analysis make one fact evident: the principal cause of declines in Floridan Aquifer water levels and quality in the SWUCA is ground water withdrawals. It is the intention of the Southwest Florida Water Management District to effectively manage and protect those resources, while recognizing the need for full involvement of all parties, in order to achieve sustainable use in a phased, but reasonably expeditious manner.

Southern Water Use Caution Area Information Report

I. INTRODUCTION

The purpose of this report is to provide a concise summary of the history, current conditions and future plans for the Southern Water Use Caution Area (SWUCA). A Water Use Caution Area, also known as a Water Resource Caution Area (WRCA), is defined by State law as an area where water resources are, or are expected to, become critical within the next twenty years. A number of WRCA's exist throughout the State, including several in the Southwest Florida Water Management District (SWFWMD, or the District).

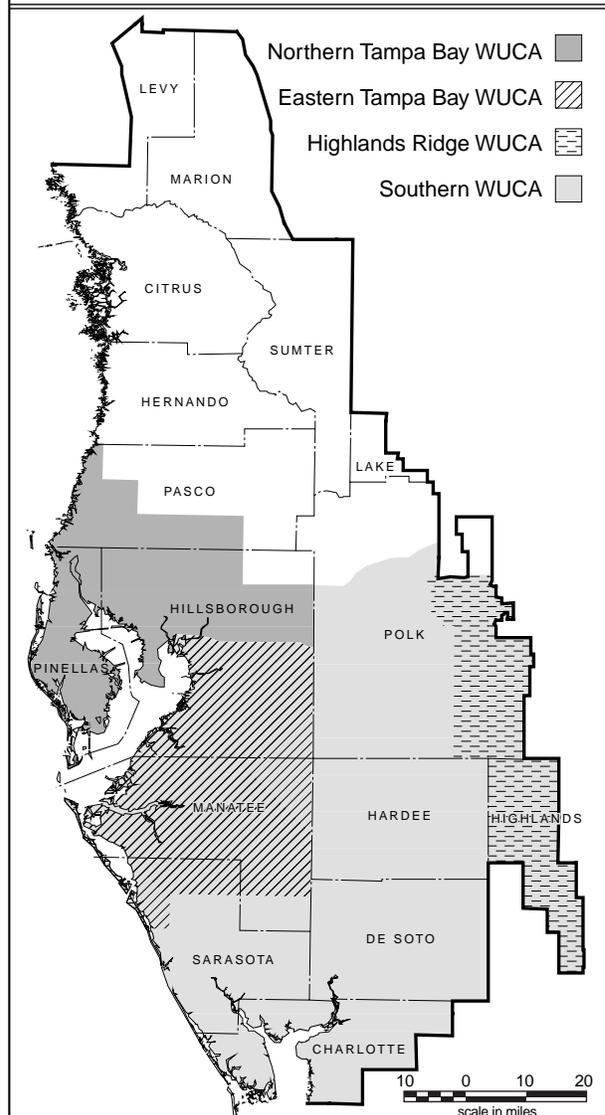
This report describes the background leading to the designation of the SWUCA, subsequent management activities including the SWUCA Rule and challenges to it, where the District is today in planning for the area and the approach being taken to assure sound management and protection of water resources.

II. BACKGROUND

The mission of the District is to manage and protect water resources for human and environmental needs. This is accomplished through both regulatory and non-regulatory means, including but not limited to, water resource development, water use and environmental resource permitting, comprehensive hydrologic monitoring and long range planning. During the mid to late

1980s, long-term declines in hydrologic conditions were observed in three specific geographic regions of the District; Highlands Ridge, Northern Tampa Bay and Eastern Tampa Bay. More intensive data collection and analysis (a Water Resource Assessment Project, or WRAP) was initiated in each area to ascertain the probable causes of the declines and the modified or new resource management programs that might be needed.

Figure 1. Water Use Caution Areas (WUCAs) within the Southwest Florida Water Management District.



Each area was designated as a WUCA in 1989 and specific water use permitting rules were implemented for the Highlands Ridge and Eastern Tampa Bay WUCAs in 1990. Major rule provisions emphasized water conservation and water use monitoring, including per capita goals for public suppliers, crop efficiency standards for agriculture and specific conservation plans for recreation, industrial and mining uses. Metering was also required for all uses greater than 100,000 gallons per day.

The decision to designate the Highlands Ridge and Eastern Tampa Bay WUCAs was validated by the subsequent results of the districtwide Needs and Sources Report (1992). It showed the greatest projected percentage increase in water use by 2020 would be in the

southern area of the District, where significant stress already existed on the Floridan Aquifer. It verified that current and anticipated demands would create water resource problems in the Highlands Ridge (HR) and Eastern Tampa Bay (ETB) WUCAs that needed to be addressed.

The results of the Eastern Tampa Bay WRAP Report showed that ground water resources of the ETB and HR WUCAs are interdependent and must be addressed from a basin-wide or regional perspective. This led to the establishment of the Southern Water Use Caution Area in 1992, encompassing the two existing WUCAs and all the area between them (see Figure 1). Specifically, the SWUCA encompasses an area of about 5,100 square miles and covers the southern half of the District, including all of Manatee, Sarasota, Hardee and DeSoto counties and portions of Hillsborough, Charlotte, Highlands and Polk counties.

The water resource concerns associated with the SWUCA involve the decline of lake levels along the Highlands Ridge and advancing saltwater intrusion in coastal regions. Data show the potentiometric surface in the Floridan Aquifer has declined significantly during the past 40 years. Information provided by the United States Geologic Survey (USGS) reveals seasonal declines as great as 50 feet in 1989. Water quality monitoring shows increasing trends for sulfates, total dissolved solids and chlorides across the coastal counties. Many lake levels in the Highlands Ridge area have also declined significantly, in some cases as much as 20 feet.

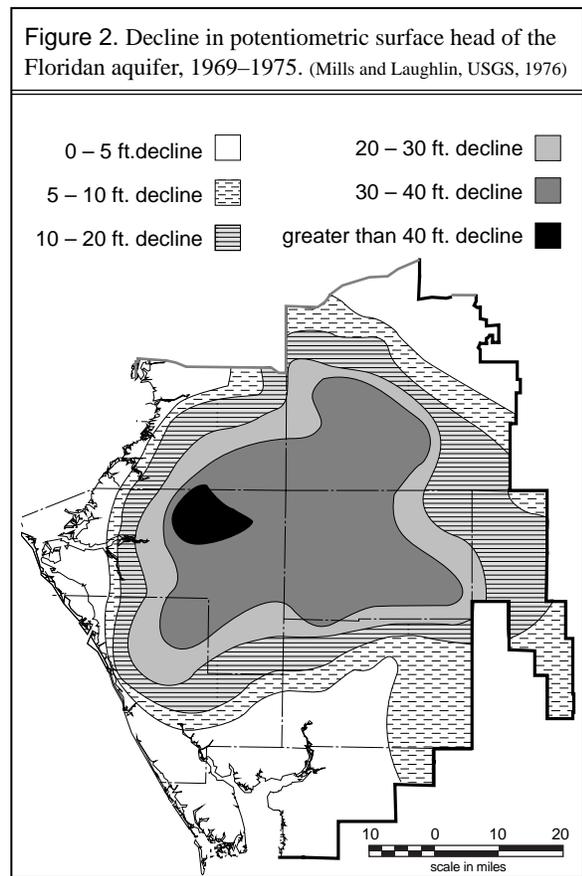
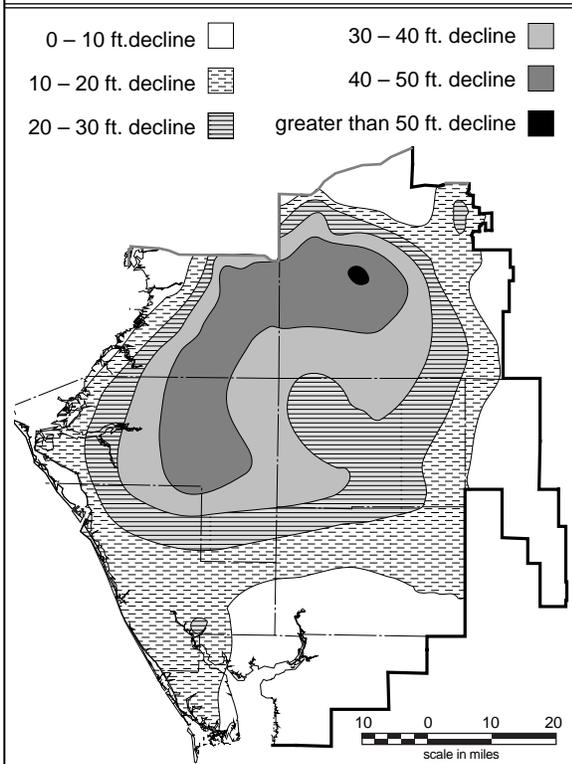


Figure 3. Potentiometric surface change in the Floridan aquifer, predevelopment to average of 1988–1992 conditions. (Southwest Florida Water Management District, 1994)



Historic Perspective

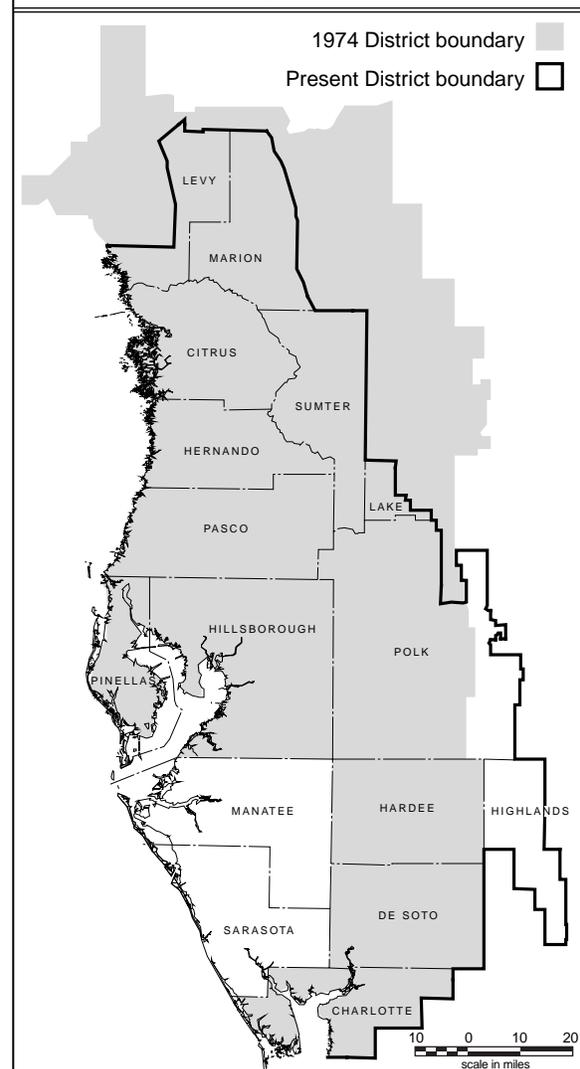
Historically, there has been excessive ground water pumping in the southern half of the District. This imbalance is illustrated by Figure 2 which shows USGS potentiometric change maps for 1969–1975, and reflects extensive drawdowns in this part of the District from ground water pumpage. The WRAPs performed by the District would eventually show that these significant Floridan Aquifer level declines remained in the late 1980s and early 1990s (see Figure 3), and that saltwater intrusion and lowered lake levels were linked to this fact.

Water use permitting in Florida is a relatively recent phenomena. In fact, water use permits

were not required in the SWFWMD until 1977. Moreover, a large portion of the SWUCA was not included in the original District boundaries (see Figure 4). Most of the Eastern Tampa Bay and Highlands Ridge Water Use Caution Areas were not a part of the District until the late 1970s, with water use permits not required there until 1980.

In effect, the District inherited a resource that was severely stressed prior to implementing

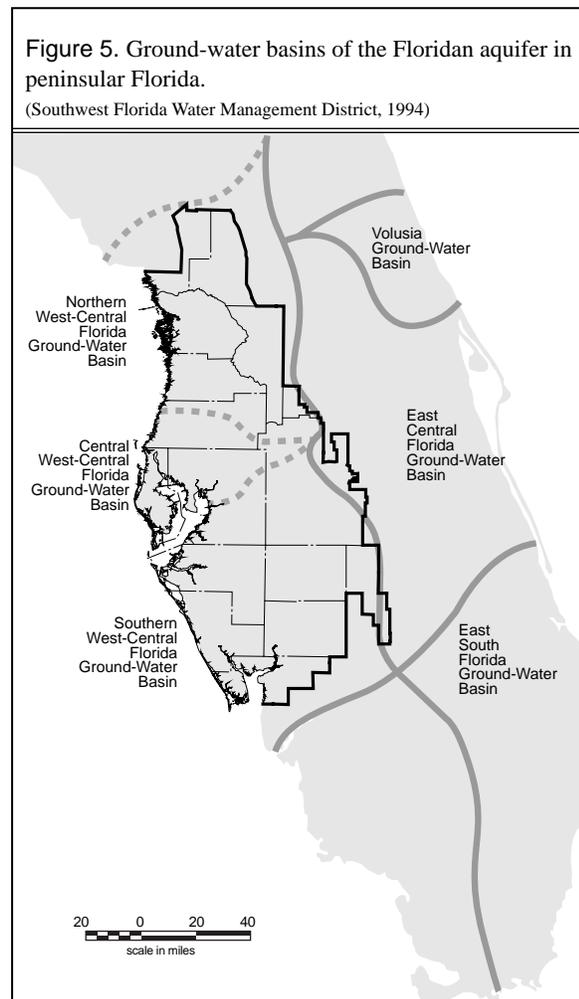
Figure 4. Boundaries of the Southwest Florida Water Management District, 1974 and present. (Southwest Florida Water Management District, 1997)



regulation and other management activities. This fact, coupled with the lack of hydrologic data within the area in the 1970s, resulted in the initial permitting activity being more of an inventory of use that was already there than a true allocation of available resources.

III. HYDROLOGIC OVERVIEW

A sound understanding of the water resource issues, and potential management approaches, within the SWUCA requires awareness of the hydrologic characteristics of the area. Peninsular Florida consists of several ground water basins (see Figure 5). In the Southwest



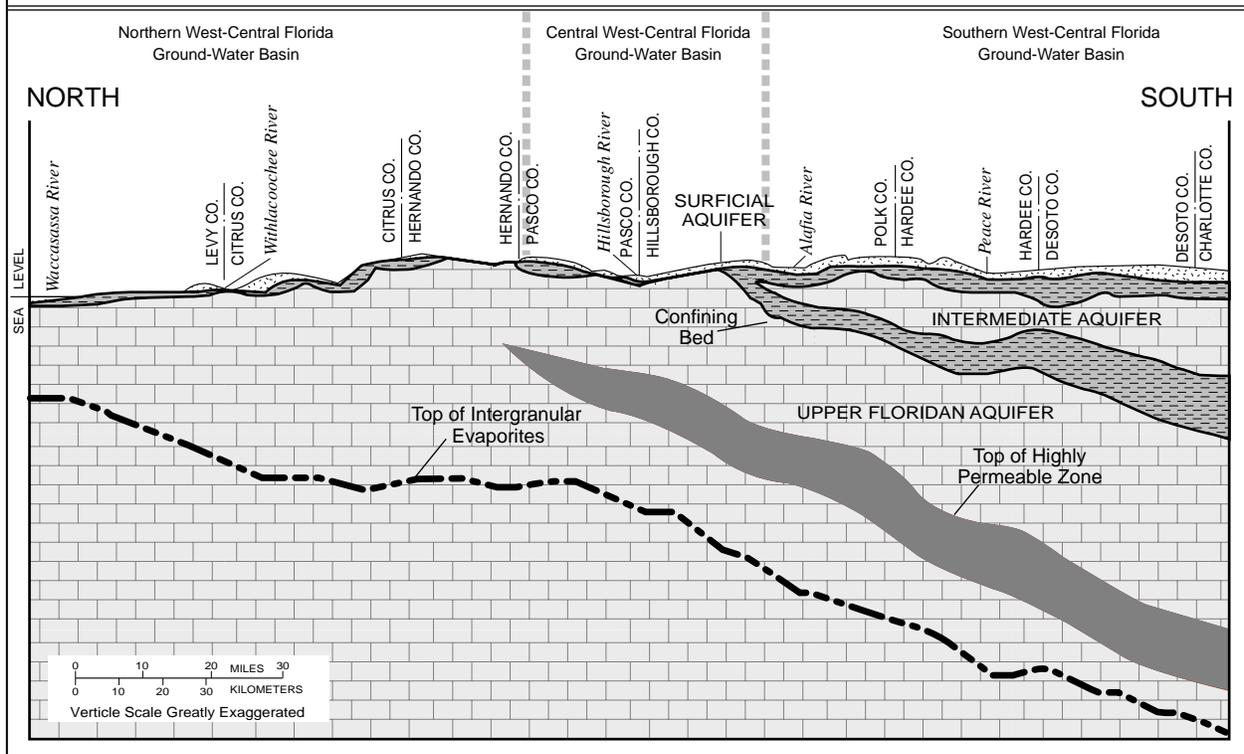
District, there are three primary ground water basins which can be generally characterized as the northern, central and southern. The SWUCA lies within the southern basin, and contains three distinct aquifer systems, the surficial, the intermediate and the Floridan.

The surficial aquifer system generally exists in the relatively thin surficial sands that overlay the Floridan and intermediate aquifers. This particular aquifer is used in a limited fashion as a source of water, primarily in some of the coastal communities in Charlotte County and inland in Highlands County, where the sands are up to 200 feet thick.

The SWUCA also has a complex intermediate aquifer system which is comprised of numerous thin water bearing units that can serve as individual aquifers. This source is used primarily for domestic wells and some public supply, mostly in Sarasota and Manatee counties. The District is continuing to study the intermediate aquifer.

Finally, the SWUCA contains a highly productive deep aquifer system (the Floridan Aquifer) which is up to 1,500 feet thick (see Figure 6). The large majority of ground water use in the SWUCA (about 85 percent) is derived from the Floridan. Water quality from this source is good in much of the SWUCA, but of poorer quality in the southernmost part of the District, such as southern DeSoto and Charlotte counties, and in coastal Sarasota and Manatee counties. These areas have very high total dissolved solids that make the resource generally less desirable as a potable water source and for some agricultural purposes.

Figure 6. Hydrogeologic cross section of the Southwest Florida Water Management District.
(Southwest Florida Water Management District, 1994)



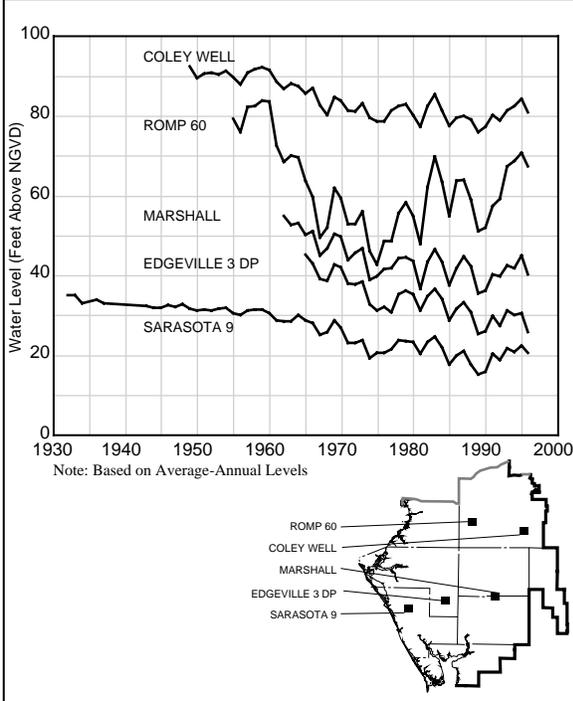
The Floridan Aquifer in the SWUCA is a well confined, highly transmissive, regional aquifer system. This means monitor wells placed miles apart may show a response to the same pumping stress. In other words, withdrawals at a single point in the SWUCA can affect water levels over large areas of the SWUCA. This relationship can be seen in Figure 7, which shows similar long-term declines in ground water levels at various locations throughout the SWUCA.

Under natural conditions, recharge to the Floridan Aquifer in the SWUCA occurs in the vicinity of the Highlands Ridge WUCA. Along the Ridge, the surficial aquifer is quite permeable and the intermediate aquifer is mostly absent. The confining layer clays between the surficial and Floridan aquifers

present in other parts of the SWUCA are thin to absent. In other areas of the SWUCA, the Floridan Aquifer is confined, causing water in the Floridan to be under pressure. This pressure is expressed in feet relative to sea level. In low lying coastal elevations, this pressure is sufficient to cause water to flow naturally at land surface from deep wells. Withdrawal of water from the aquifer reduces the water pressure which ultimately causes lake levels to decline in the Ridge area, and seawater to intrude along the coastal areas into the freshwater portion of the Floridan. Similarly, overpumping can result in upconing, or the upward movement of sulfate and other mineral-rich waters into previously good quality waters. It also results in induced recharge from the Intermediate and Surficial aquifer systems to the Floridan Aquifer.

Figure 7. Ground-water level relationships in the Southern Water Use Caution Area.

(Southwest Florida Water Management District, 1997)

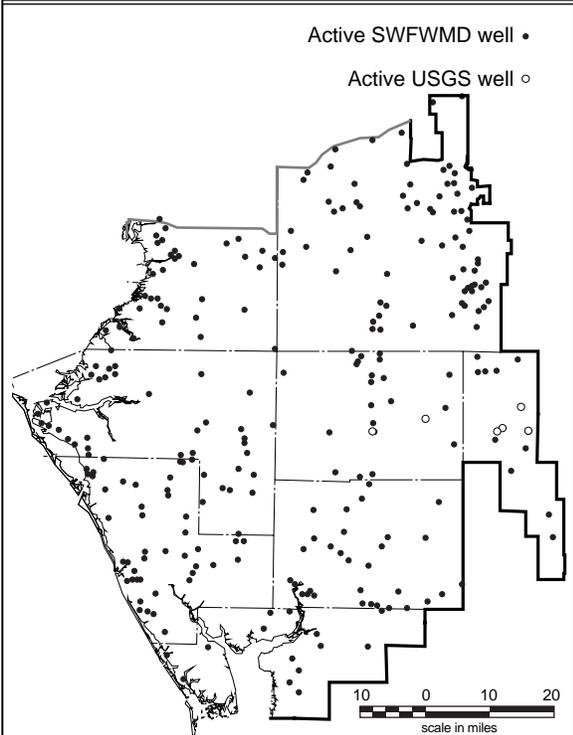


In May, 1989, the District compared existing water levels to those of the 1930s. This regional assessment found that on a long-term basis, water levels have been drawn down by 30 feet or more in a major part of the basin. Moreover, water levels had been lowered 40 to 60 feet in about two-fifths of the 5000 square mile basin. There was also a substantial area where levels dropped more than 60 feet.

The District has an extensive network of monitor wells to assess both ground water levels and quality, including its own wells and those of the USGS. This includes 793 total wells on 309 sites, and reflects 81 new wells constructed since 1989 as part of the Regional Observation and Monitoring Program, or ROMP (see Figure 8). A Five-Year Work Plan is in place to refine the District's network.

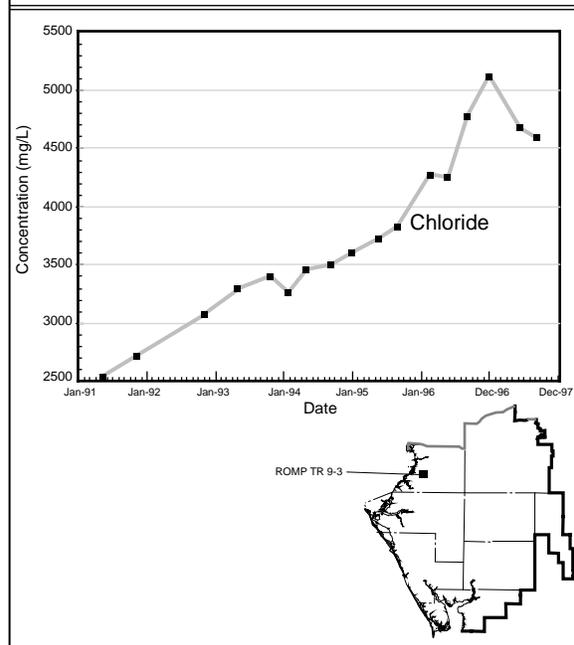
Figure 8. SWUCA well monitoring network—1997.

(Southwest Florida Water Management District, 1997)



One well in the overall network, ROMP TR 9-3, in southern Hillsborough County, illustrates concerns over saltwater intrusion.

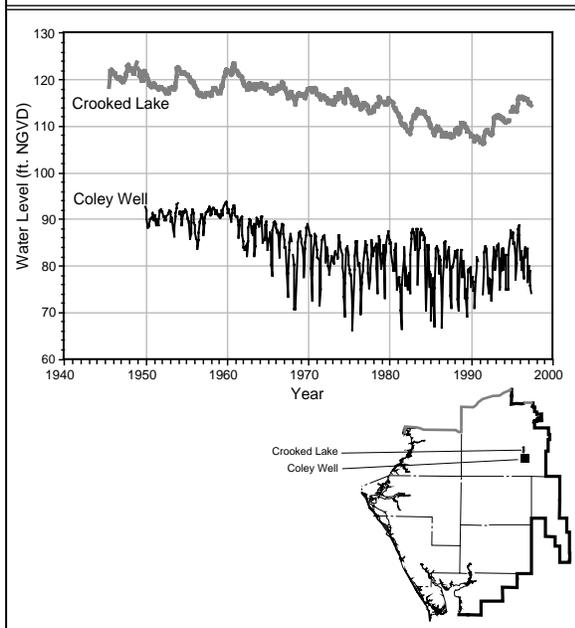
Figure 9. Saltwater intrusion at ROMP TR 9-3, Avon Park. (Southwest Florida Water Management District, 1997)



It shows that since 1991, chloride levels have steadily increased, indicating the saltwater interface is moving inland and upward toward the well (see Figure 9).

Lake levels have also been affected. In the Highlands Ridge area, Crooked Lake water levels have steadily declined from an elevation of 124 feet above sea level to less than 110 feet above sea level in the last 30 years (see Figure 10). Deep aquifer levels monitored by the Coley Well in the same area also have shown a decline for the same period. This reflects the surface and ground water connection prevalent along a good part of the Ridge.

Figure 10. Water levels at Coley well and Crooked Lake. (Southwest Florida Water Management District, 1997)



IV. WATER USE IN THE SWUCA

The overall quantities withdrawn within the SWFWMD as a whole have not appreciably changed over the past several decades (see

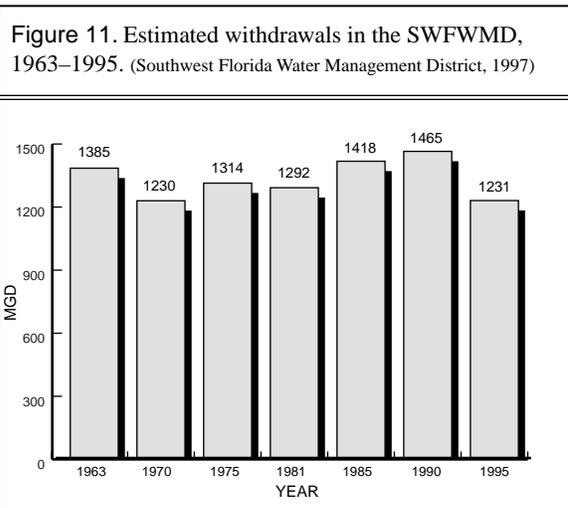


Figure 11). Although there has been some decline since 1990, most of this has been specific to the SWUCA, particularly in the critical area of ground water withdrawals (see Figure 12). This is due to a number of factors, including the District’s attention to the problem. Provisional estimates for 1996, however, show increased use of about 60 mgd (or nearly 11 percent) over the previous year. The bulk of this increase was for agricultural withdrawals in Polk, Manatee, DeSoto, Hardee and Highlands counties. Year to year variability in water use and climatic conditions are to be expected, and reinforces the need for vigilance in assuring sustainable supplies in the SWUCA.

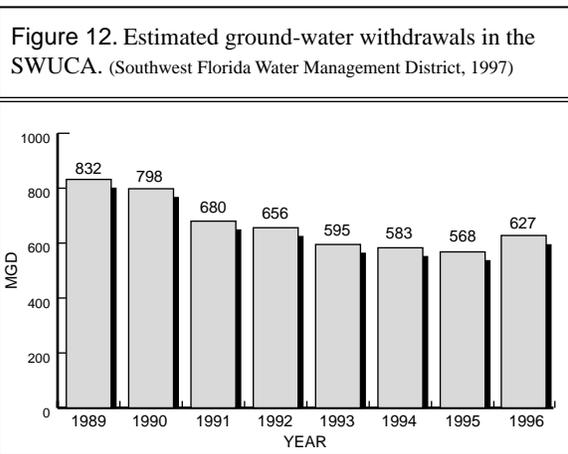
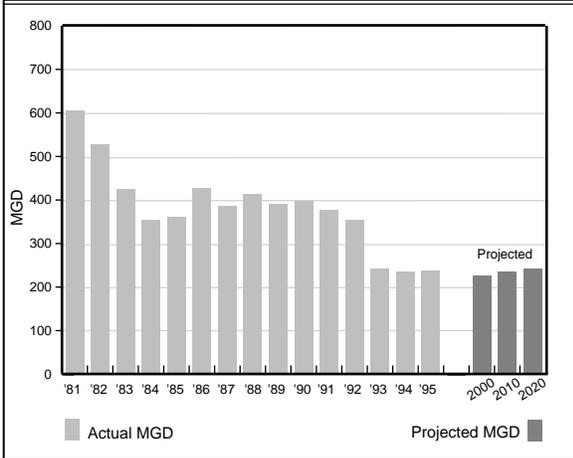


Figure 13. Industrial/commercial and mining/dewatering use District-wide.
(Southwest Florida Water Management District, 1997)

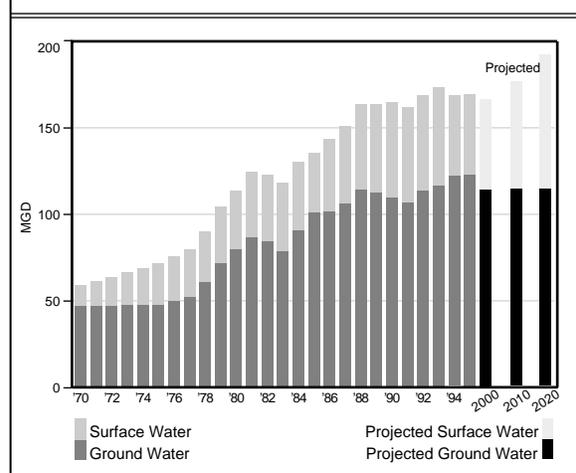


The four major water uses in the SWUCA are row crops (especially tomatoes), mining, citrus, and public supply. These uses account for 80 to 90 percent of total water use in the basin. Total estimated use in the area shows agriculture at 54 percent, mining at 17 percent and 25 percent utilized by public suppliers (Estimated Water Use 1995 - SWFWMD).

In the early 1980s, commercial use, primarily mining, was 500–600 million gallons per day (mgd) annual average (see Figure 13). Since then, technological advances and an industry commitment to conservation have created the ability to recirculate water used in phosphate mining. Today, water use has been reduced to about 200 mgd industry-wide. The most recent water use projections (through 2020) show Industrial/Commercial and Mining/Dewatering use remaining fairly stable. As an example of this aggressive conservation approach, IMC Agrico (one of over 6,000 permittees in the SWUCA) was using 70 mgd in the early 1990s, and now uses only 37 mgd of ground water. Their goal is to eliminate ground water use in the future.

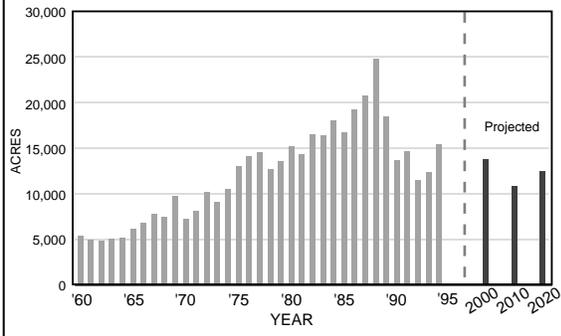
During the last decade, public supply use of ground water has remained steady and the projection to 2020 is similar (see Figure 14). However, use of surface water has risen and is projected to continue rising. Most of the population growth in the basin is expected in Charlotte, Sarasota, and Manatee counties. These counties will continue to be served primarily by surface water. Hardee, DeSoto, and Highlands counties are not expected to utilize very much additional ground water for public supply. In Polk County, although some growth is expected, ground water for public supply should remain fairly flat through 2020.

Figure 14. Public Supply Water Use in the Southern WUCA. (Southwest Florida Water Management District, 1997)



Agricultural water use supports a number of crop types in the SWUCA, from strawberries to pasture, and nursery operations to sod farms. The primary crops in terms of water use, however, remain tomatoes and citrus. It is important to recognize agriculture’s overall efforts to reduce water use. Growers have invested substantial amounts at their expense on tools that reduce water use.

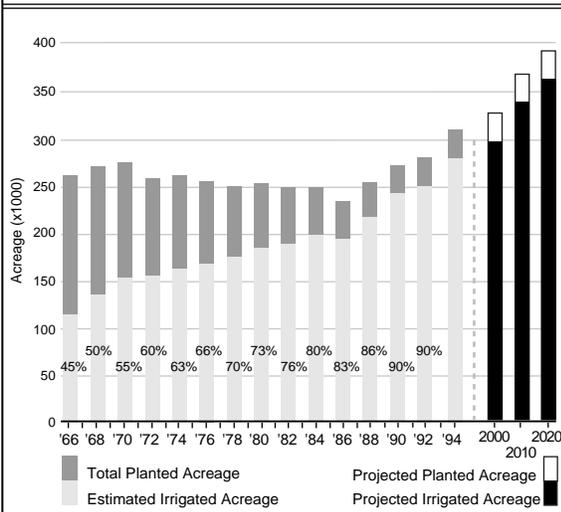
Figure 15. Tomato acreage in the SWUCA.
(Southwest Florida Water Management District, 1997)



Tomato acreage started to rise significantly in 1975, but has decreased in recent years, with projections through 2020 remaining relatively stable (see Figure 15). Significant progress in conservation is also being made in this area through best management practices and irrigation technology.

The citrus industry is growing at a rapid rate, as has the percentage of acreage irrigated (90 percent in 1990 versus 45 percent in 1966). Citrus acreage has grown from an historical average of 250,000 acres to over 300,000

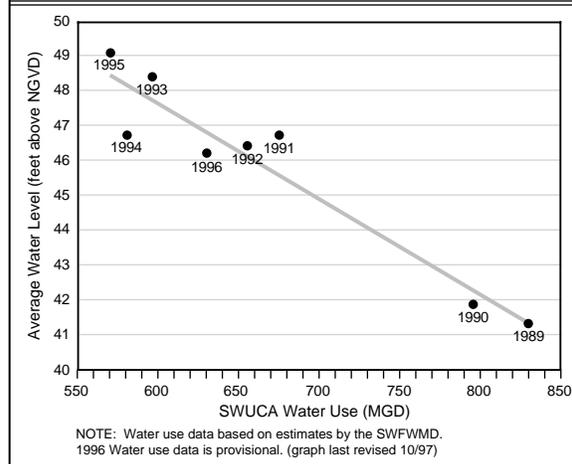
Figure 16. Citrus acreage in the SWUCA.
(Southwest Florida Water Management District, 1997)



acres in the last five to ten years (see Figure 16). Projections indicate that it could grow to 400,000 acres by 2020. Growers continue to expand use of micro-irrigation in response to the multiple benefits such systems offer, including water conservation.

In terms of water use, one fact is evident: the principal cause of Floridan Aquifer water level declines in the SWUCA is ground water withdrawals. This relationship is well illustrated by data from 1989-1996 (see Figure 17).

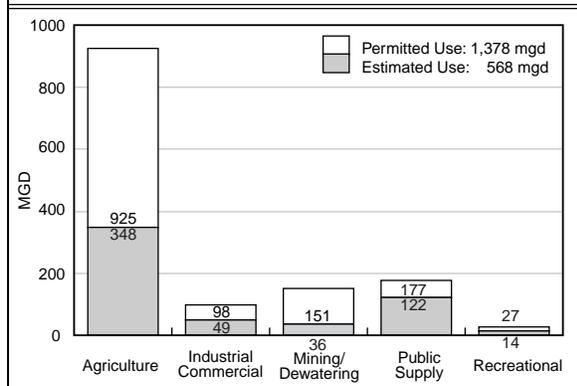
Figure 17. SWUCA water use vs. SWUCA water level, 1989–1996. (Southwest Florida Water Management District, 1997)



A significant issue in resource management in the SWUCA is the relationship of permitted quantities to actual use. Current permitted quantities in the basin total about 1.4 billion gallons of ground water per day, while estimated use has ranged from 832 mgd (1989) to 568 mgd (1995). The estimated use and permitted quantities relationship for ground water in 1995 is shown in Figure 18 (see next page).

Figure 18. SWUCA ground-water use (mgd), 1995, permitted and estimated.

(Southwest Florida Water Management District, 1997)



Addressing this issue is not as simple as just reducing existing water use permits (which typically run 10 years for agriculture). This is due, in part, to the need for higher irrigation quantities for agricultural production during drought years as opposed to years of average or high rainfall. Statistically, in 8 out of 10 years, the actual quantity used for a given permit is likely to be less than the permitted quantity, but in the other years this quantity may be needed to achieve full production. Agricultural uses under this permitting approach represent a large portion of the permitted water use quantities in the SWUCA. Other permitted versus actual use differences relate to market conditions (e.g., changes in mining, manufacturing and agricultural product demands as prices rise and fall), and the “growth factor” in public supply use over the life of a permit. Narrowing the gap between actual and permitted quantities must carefully consider how to minimize disruptive economic impacts.

In recent years, the actual amount of water pumped and used has been substantially below the 650–700 mgd the District has determined to represent the approximate sustainable

amount the aquifer can yield. Between 1991 and 1995 average water use has been 616 mgd. Current projections to the year 2020 indicate water use will be slightly more than 760 mgd. This creates the likely need for 50 to 100 mgd from alternative sources to meet projected demand in 2020 (see Figure 19).

Figure 19. Estimated future SWUCA water use needs.

(Southwest Florida Water Management District, 1997)

	1991-1995 Average Use	2020 Projected	2020 Estimated Need
Public Supply	119	140	21
Agriculture	376	460	84
Mining/Industrial	106	122	16
Recreation	15	39	24
Total	616	761*	145

* Estimated sustainable quantity SWUCA-wide is 650–700 MGD.

V. THE 1994 SWUCA RULE

In 1993, the District, local representatives of agribusiness, public supply, industry, the environmental community and local and regional governments began work on a SWUCA management plan. Monthly meetings set the course for balancing water demand with the ability of the resource to meet that demand. A management plan was completed in April, 1994. This was followed by public meetings starting in June, 1994 in communities across the multi-county SWUCA to gather public comment on proposed water management rules which would implement the minimum aquifer level, the primary means through which ground water sustainability was to be achieved.

In considering where to set the minimum level, the District's Governing Board assessed three options:

- 1) Return the saltwater interface to a historical position closer to the coast;
- 2) Significantly reduce the rate of landward saltwater intrusion; or
- 3) Maintain the status quo.

After a great deal of debate and consideration of a number of scientific, social and economic issues, the Board decided on option 2) and directed staff to prepare a rule to effect such a result. The objectives of the rule that followed were clearly delineated. The first was to preserve the freshwater resources of the Floridan Aquifer and stabilize lake levels in Polk and Highlands counties. The second was to limit the impact of the proposed regulations on the region's economy and existing users.

A fundamental underpinning of the SWUCA Rule was the Board's acknowledgment that the water resource problems of the area had developed over the long-term and could not be corrected immediately without serious socio-economic impacts. The regional public welfare implications of numerous existing users losing their permits, and the resultant effects on the economy translated to a decision that immediate large-scale reductions by existing users was not advisable. Rather, the principal concept integrated within the rules was to gradually reduce existing user withdrawals while not allowing new withdrawals to take place, and building in a mechanism (reallocation) to redistribute existing permitted quantities to new uses and at new locations within the SWUCA.

The District's approach to the SWUCA dilemma included:

- a) Using a Minimum Aquifer Level to prevent the withdrawal of new quantities from the Floridan Aquifer;
- b) Allowing new uses to obtain water through reallocation and development of alternative sources;
- c) Phasing additional conservation requirements to gradually reduce existing permitted quantities; and
- d) Providing incentives and funding for development and use of alternative sources.

It is important to note there were two distinct steps taken to institute the minimum level. The first was to establish the proper minimum level through years of data collection and scientific analysis. The second was preparation of a plan to achieve this level by considering environmental, technical and socioeconomic aspects of the imposition of such a rule.

An innovative and controversial aspect of the SWUCA Rule was reallocation, a mechanism intended to reduce impacts of the Rule on existing and future permittees. Since new quantities would not be permitted when the water level was below the minimum level, the rules provided for reallocation to move permitted water between users to less stressed areas as an alternative to the competing applications provisions in Chapter 373, Florida Statutes (F.S.).

The competing applications process is specifically set out in Chapter 373.233, F.S. It provides that in the case of insufficient water to satisfy all applicants, the Governing Board may determine which application best serves the public interest and grant only that one.

The reallocation rule was designed as an alternative to competing for water in that it would allow those who needed water to get it from an existing permit and use it in another location for another purpose. If an existing permittee and the person needing water could agree to the transaction, they would apply for District approval. The District would evaluate the application to determine if the new use met permitting criteria, including the public interest test, just as it would with any new permit. If so, the existing permit would be modified to delete the transferred quantities which would then be incorporated into a new permit.

The SWUCA Rule also included higher efficiency standards for users, a requirement for water conserving rate structures and Ground Water Withdrawal Credit permits to encourage the use of alternative source water. Also significant were water-conserving credits for agriculture, the first time a water management district in Florida incorporated a conservation incentive into the permitting process.

When the proposed rule was published for adoption in December, 1994, the District received notice of 26 challenges to the rule. The challengers were five county governments, one environmental organization and twenty agribusiness entities. After a series of discussions and resulting rule clarification

changes, most of the agribusiness challenges were withdrawn. The resulting hearing lasted a total of nine months, due in part to a challenge to the District's entire water use permitting program along with the changes associated with the SWUCA.

The Final Order

In March 1997, the District received the administrative law judge's Final Order on the challenges to the District's Southern Water Use Caution Area rules. The Order also addressed the existing water use permitting rule challenges that were consolidated with the hearing on the proposed SWUCA rules. The Order, which took about one year for the judge to write, followed a hearing that was the longest in DOAH (Department of Administrative Hearings) history. The administrative law judge found the following proposed rules valid:

- 1) **Minimum Floridan Aquifer Level.** The judge upheld the science that was used to establish the level, and found that socioeconomic factors could be balanced with science in establishing the minimum level.
- 2) **Conservation Phased In.** Existing permits are subject to being reduced, but gradually over a ten-year phase-in period. All permittees must achieve heightened water use efficiency through measures specific to use types.

The administrative law judge found the following proposed rules invalid:

- 1) **Preferential Treatment Of Existing Users.** The proposed rules would have allowed the District to treat renewal applications and permit

applications for new quantities differently. The District proposed to renew permits but deny new quantities when the potentiometric surface was below the established minimum. The judge found that applications for new quantities and renewal quantities must be treated the same under Chapter 373, F.S., unless such preference comes from the Legislature. Further, he found there is no vested right to a continuation of water use after expiration of a permit outside the competing use statute.

2) **Reallocation.** The judge found that specific legislative authority is needed before the District could authorize water users, among themselves and by private agreement, to determine the allocation of scarce water supplies.

3) **Reuse and Desalination Investigations and Determinations of Feasibility.** The judge determined that the District does not have the authority to determine whether development by the applicant of a reuse or desalination system is economically, technically and environmentally feasible.

With respect to reuse, the judge concluded that while Chapters 373 and 403, F.S., recognize reuse as a desirable goal, the decision whether to construct the necessary facilities was specifically left to the utilities and not the District.

As to desalination, the judge found authority for the District to investigate and implement desalination on its own but not to shift the responsibility for developing desalination to certain public supply applicants through the water use permitting process.

4) **Separate Permits for Wholesale Public Supply Customers.** The proposed rules would have required wholesale public supply customers (i.e., a water utility without its own source of water that receives water from a permitted public supplier) to obtain a separate water use permit as a way of implementing conservation measures and other permitting conditions. The judge found the District does not have the legal authority to require an individual or entity receiving water from a permittee to obtain a separate permit.

In summary, the District's approach had evolved into a complex, integrated set of proposed rules designed to work in conjunction with each other to accomplish the SWUCA objectives. The deletion of certain key provisions had the effect of creating an ineffective, even counterproductive result. The District, like all those involved, had the option to appeal all or part of the ruling.

Appeal of the Final Order

As of the end of 1997, the effect of the Final Order is stayed and has no effect because the District and all other parties to the case, except Charlotte County, (for a total of nine) have appealed the Final Order to the Second District Court of Appeals. This means that none of the SWUCA rules can go into effect until the appeal is resolved. A work group made up of the five water management districts and the Florida Department of Environmental Protection (DEP) has been formed to discuss appellate issues, such as the basis to appeal any particular ruling by the judge. The DEP and the St. Johns River Water Management District have been granted leave to file briefs as *amicus curiae*, or "Friends of the Court".

In October, 1997, the Governing Board moved to appeal three specific components of the ruling, and withdrew the Minimum Aquifer Level. The three parts of the ruling to be appealed include the provisions to:

- 1) require the investigation and, where feasible, implementation of reuse;
- 2) require the investigation and, where feasible, implementation of desalination; and
- 3) require wholesale public supply customers (i.e., a water utility without its own source of water that receives water from a permitted public supplier) to obtain a separate water use permit to implement conservation measures.

The withdrawal of the minimum level, even though upheld by the judge, was the result of a part of the Rule that linked the intended level to the provisions for reallocation and treatment of renewals differently than new applications. This has been called the “three-legged stool,” and was an important part of gaining permittee support for the original rule. The failure of two of its “legs” resulted in the need to withdraw and reevaluate the minimum level in its present form. This temporary withdrawal of a minimum aquifer level does not negate the District’s ability to utilize the previously established Water Use permitting rules for the Eastern Tampa Bay, and Highlands Ridge WUCAs which remain in effect. In addition, a comprehensive reevaluation of the SWUCA management approach is well underway (see the following).

VI. THE FUTURE OF THE SWUCA

The conditions that resulted in the need for specialized water resource management in the SWUCA have not gone away. Saltwater intrusion persists and lowered lake levels remain. Seeing a window of opportunity created by changing circumstances, the Governing Board has determined there is a need to reevaluate its management plan in light of recent court rulings. This opportunity is based on a number of factors:

- significant portions of the SWUCA Rule were ruled invalid by an Administrative Law Judge;
- a reduction in ground water usage has occurred since the SWUCA process began, resulting in lower water use projections for the future;
- aquifer levels have recovered in most areas to the minimum level proposed by the earlier plan; and
- 1997 legislation on minimum flows and levels allows a “recovery strategy” when actual levels are below the minimum levels.

The District took several actions during 1997 to initiate an effective reevaluation of conditions and management in the SWUCA. In May, a statewide SWUCA Discussion Group made up of water resource experts generally not involved with the previous efforts was convened to brainstorm alternative approaches to resolve the problems of the area. This was followed in June by two public workshops in Bartow and Bradenton to brief affected parties and the general public on the

latest developments and to seek feedback. Then, in September came the formation of a staff-based SWUCA Team with a broad charge to revisit previous management efforts and try to build a consensus around a cooperative approach to maintaining sustainable water supplies.

The SWUCA Team is a multidisciplinary staff group, ranging from hydrologists, geologists and engineers to planners and other support staff. Both regulatory and resource projects components are well represented, with the focus of the Team on:

- carefully refining the issues to be addressed, including the development and implementation of a resource management program which protects water and related natural resources while maximizing water supply;
- identifying regulatory and non-regulatory alternatives for cooperative management;
- evaluating and modifying the minimum aquifer level as needed;
- forming a work group of affected parties to assure full involvement;
- developing the prevention / recovery strategy for the area;
- coordinating with other water districts, DEP, the Department of Agriculture and Consumer Services (DACS), Charlotte Harbor NEP and others; and
- maintaining ongoing communication with the District's Governing and Basin boards, advisory committees and other appropriate parties.

One point has already become crystal clear. The water resource problems of the SWUCA are long-term in nature — solutions must also be long-term. There is not an immediate crisis now, and an effective resource management approach will assure one is avoided. The variability of water use, resultant effects on aquifer levels and the need to achieve and maintain sustainable supplies indicates both short term and long-term strategies are necessary.

The District's overall strategy will attempt to balance regulation with technical and financial incentives (e.g., implementation of a minimum aquifer level with water resource development for alternatives to ground water use) while closely monitoring water use, water levels and water quality. The intent is to achieve effective resource protection without negatively affecting the local economy.

In the short term, the District will:

- continue to use existing water use permitting rules for the Eastern Tampa Bay (ETB) and Highland Ridge (HR) Water Use Caution Areas (WUCAs), as summarized in Figure 20 (next page). Districtwide rules will continue to be stringently applied in the balance of the SWUCA.
- anticipate that demand for ground water will exceed the quantities available in at least portions of the SWUCA, and develop and adopt a "Competing Applications Rule" which will allow the Governing Board to determine which uses should receive permits based on those most in the public interest.
- develop a revised SWUCA Rule as part of an overall management strategy. This will

Figure 20. Existing Highlands Ridge (HR) and Eastern Tampa Bay (ETB) Water Use Caution Areas (WUCAs) rules.

- No new quantities from confined aquifers in the Most Impacted Area (MIA)
- No new quantities from confined aquifers that would impact the MIA
- No new impacts to stressed lakes on Ridge
- New quantities can be permitted elsewhere within the HR and ETB WUCAs
- Increased conservation for all water users, both new and existing, in HR and ETB WUCAs
- Metering of permits $\geq 100,000$ gallons per day

include reestablishment of minimum levels, possible use of components from the original SWUCA Rule that were not challenged (e.g., water conserving credits for agriculture, ground water withdrawal credits for use of alternative sources, heightened efficiency standards for all users, etc.) and revisions to some of the SWUCA Rule language to accommodate suggestions of the Judge.

- appeal three specific components of the SWUCA ruling (see earlier listing).
- continue forward with water supply planning efforts such as the “Districtwide Assessment” and a subsequent “Regional Water Supply Plan” for the SWUCA. Existing water resource development efforts will be enhanced pursuant to Chapter 97-160, Laws of Florida, so as to create effective partnerships with local governments, utilities, agriculture, the regional water supply authority and others to meet present and future water supply needs.
- establish an outreach program to reengage the affected and interested public. The primary objectives will be to inform and involve, disseminating information on water use trends, projected uses and resource

management decisions, while gaining effective feedback such as assessment of revised and new rule proposals and input on the intent of comprehensive monitoring programs.

This overall interim strategy is intended to allow water use permit renewals and some new permits in parts of the SWUCA. Most of the associated quantities are expected to be offset by reductions in permitted quantities due to heightened water use efficiency requirements, retirement of some permits and continuing cooperation of user groups in achieving water conservation (e.g., industrial process improvements, public supply per capita reductions and best management practices among agriculture and recreational users cited earlier in this report).

The Administrative Law Judge concluded the District cannot deny new uses based on water resource concerns in the SWUCA without also denying renewals to existing users, i.e., all users must be treated equally. Denial of existing permits would have significant economic impacts, and is not considered practical or desirable. The District intends to achieve sustainability in a phased, but reasonably expeditious manner.

In the longer term, the District will continue and refine the short term approaches, including:

- implementation of the revised SWUCA Rule and associated minimum levels as part of an overall recovery strategy.
- use of the Competing Applications Rule as needed.
- continuous improvement of the detailed monitoring system necessary to identify trends and refine our understanding of the resource.
- a commitment to develop alternative water supply sources, including but not limited to, reuse of stormwater and wastewater, aquifer storage/recovery, sustainable use of surface water and water conservation.

VII. CONCLUSION

The methodology used in establishing the minimum aquifer level for the SWUCA is not necessarily applicable to other parts of the District or State. Development of a regional aquifer level was chosen as a result of the geohydrologic configuration of the SWUCA and the large number of permits contributing to the overall conditions. The method to use in establishing any minimum flow or level (by rule, permit or Board Order) should be determined only after evaluating a series of factors including, but not limited to, the nature of current and projected impacts, the number of current and future permits and the specific hydrogeology and ecology of the area. The District methodically employed a highly

inclusive management process, and carefully followed proper rulemaking. Over a seven-year period, the agency held numerous workshops to seek public input, conducted dozens of in-depth studies costing several million dollars, held peer review sessions over a number of years and allowed interested parties repeated opportunities to address the Board. Yet, in the final analysis, the establishment of a minimum flow or level draws a clear line between the needs of man and the environment. These decisions will inevitably result in conflict as it did in the SWUCA and has in Northern Tampa Bay. The growth of Florida will depend on the availability of water, and therefore each minimum flow and level established throughout the State will influence the rate and cost of any such growth. The stakes are high, and all major water users can be expected to contend in any forum possible to secure their portion of the remaining water resources of Florida.

It is the intention of the Southwest Florida Water Management District to effectively manage and protect those resources, while recognizing the need for full involvement of all parties, as we move toward sustainable use that assures the region's future quality of life.