SPECIAL PUBLICATION SJ2010-SP11

STATISTICAL EVALUATION OF HYDROLOGIC DATA IN NORTHEASTERN FLORIDA AND SOUTHERN GEORGIA

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Final Report Submitted to the St. Johns River Water Management District, Contract #25325

STATISTICAL EVALUATION OF HYDROLOGIC DATA IN NORTHEASTERN FLORIDA AND SOUTHERN GEORGIA

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Summary

The Suwannee River Basin (SRB) in Florida contains an abundance of springs discharging groundwater from the Floridan aquifer system (FAS). Historic large-scale groundwater withdrawals in northeastern Florida and southeastern Georgia may have contributed to the lowering of the potentiometric surface of the Upper Floridan Aquifer (UFA) more than 10 feet over a very large area (Bush and Johnston, 1988). The impacts of historical groundwater withdrawals upon the FAS in the SRB have not been quantified. The Suwannee River Water Management District (SRWMD) in Florida has expressed concerns that FAS withdrawals beyond its boundaries to the east and north have affected river and/or spring discharges in its district.

This project involved collection, compilation, and statistical trend analyses of historic hydrologic data (groundwater levels, rainfall, streamflow, spring discharge) and groundwater withdrawal records in counties in the SRB in Florida and Georgia from 1980 to 2007 (**Figure 1**). It also involved statistical correlation analyses of the hydrologic data and a cluster analysis of the groundwater level time series. The study area was delineated with county boundaries as many water withdrawal datasets are available on the county level. After initial data analysis for the study area was completed, the St. Johns Water Management District (SJRWMD) requested trend and cluster analyses for additional groundwater levels in northeastern Florida and southeastern Georgia (east of the SRB) outside the previously defined study area.

Hydrological data from various public sources were collected for the period between January 1980 and December 2007. This period was selected, in consultation with the SJRWMD, because it coincides with the period during which most consistent groundwater level monitoring data is available in the SRB in Florida, and also the period for which it was assumed accurate groundwater withdrawal estimates could be made. A total of 132 groundwater level, 44 rainfall, 20 spring discharge, 22 streamflow, and 30 groundwater withdrawal (by county) time series were compiled, although not all had consistent records for the entire time period. Statistical analyses were conducted on those time series that had more than 10 years of consistent data within the January 1980 to December 2007 study period.

Groundwater withdrawal data were collected and/or estimated for the period January 1980 through December 2007 using categories similar to those in the United State Geological Survey water use reports (Marella, 2009): public water supply, domestic self-supply, commercial/industrial/institutional/power/mining, and agriculture. Because there were some missing years in the withdrawal data for various categories, analyses for trend detection were conducted using separate categories and combinations of categories.

Statistical trend analyses were performed to characterize the annual time series of the available historic hydrologic and groundwater withdrawal data on a calendar year basis. S-plus software was used for analyses. A software package (i.e., EMT) provided by the St. Johns River Water Management District (SJRWMD) was used to run the S-plus scripts in batch. A graphical evaluation with a locally weighted scatter plot smoothing (LOWESS) was first used to determine whether the time series of the hydrologic data showed monotonic or piecewise trends. Trend detections were then conducted using a nonparametric statistical test (i.e., Mann-Kendall) on the residuals of each time series transformed using an autocorrelation filtration. Trends in historic hydrologic data were determined based on the p-value and the slope. Per suggestions from the SJRWMD, the confidence levels were categorized as: 1) >95% (very certain (there is a trend)), 2) >90% (probably trending), 3) >80% (warning), and 4) <80% (no trend detected).. Analysis

was performed based on annual data to determine if long-term systematic trends existed. Therefore seasonality analysis was not performed.

Results from the statistical trend analyses of the historic hydrologic data showed that 12 out of 132 groundwater wells had very certain downward trends for the period 1980-2007 with Mann-Kendall test confidence level >95%. For the rainfall data, 1 out of 44 stations in the study area (in Dixie County) had a very certain downward trend with Mann-Kendall test confidence level >95%. No significant trends were detected for data from the 22 streamflow stations. There was insufficient spring flow data (i.e., less than 10 years of observations with sporadic measurements) collected from 20 stations to conduct the trend and other statistical analyses.

Uncertainty regarding the accuracy of the groundwater withdrawal records compiled, and conflicting results from the various statistical trend analyses of these records, suggest that these groundwater withdrawal data were not of sufficient quality to draw reliable conclusions about trends in these data. Therefore correlation analyses between groundwater withdrawal data and other hydrologic data time series were not performed. Further efforts are recommended to estimate more reliable groundwater withdrawal data in the study area, particularly for the agricultural use category.

Statistical relationships between hydrologic data time series (other than groundwater withdrawal) were evaluated. Based on the results from data compilation and review, and from the trend analyses, correlation analyses were conducted using the time-series of groundwater level which showed probable or very certain trends and the nearest two rainfall and streamflow time series. The correlations between two time series were evaluated using the Spearman's rank, Kendall's rank, and linear regression analyses.

The correlation analyses showed that there were probable correlations between two groundwater level time series in the SRWMD that had trends detected with Mann Kendall test confidence level > 90% and one of the nearest rainfall time series. This suggests that annual variations in groundwater levels at those groundwater stations are related to annual variations in precipitation in the area. Probable correlations were also found between almost all trending groundwater wells (except one in Georgia) and streamflow gauges near each of them. This implies that annual variations in groundwater levels and streamflow may have similar causes, and that base flow contribution may play an important role in the streamflow at these river stations. The fact that the groundwater levels showed statistically significant downward trends but the correlated rainfall and streamflow measurements did not, is likely due to the higher inter-annual variability of the rainfall and streamflow as compared to the groundwater.

A cluster analysis was conducted on all groundwater level time series. A total of 102 wells with coincident continuous data from 1986-2005 were analyzed using the agglomerative heirarchical cluster analysis (AHCA). The results showed that the groundwater level time series could be clustered into 2, 3, or 4 clusters. The groundwater wells in those clusters were generally located in close proximity to each other or had a similar groundwater-level trends and/or fluctuations.

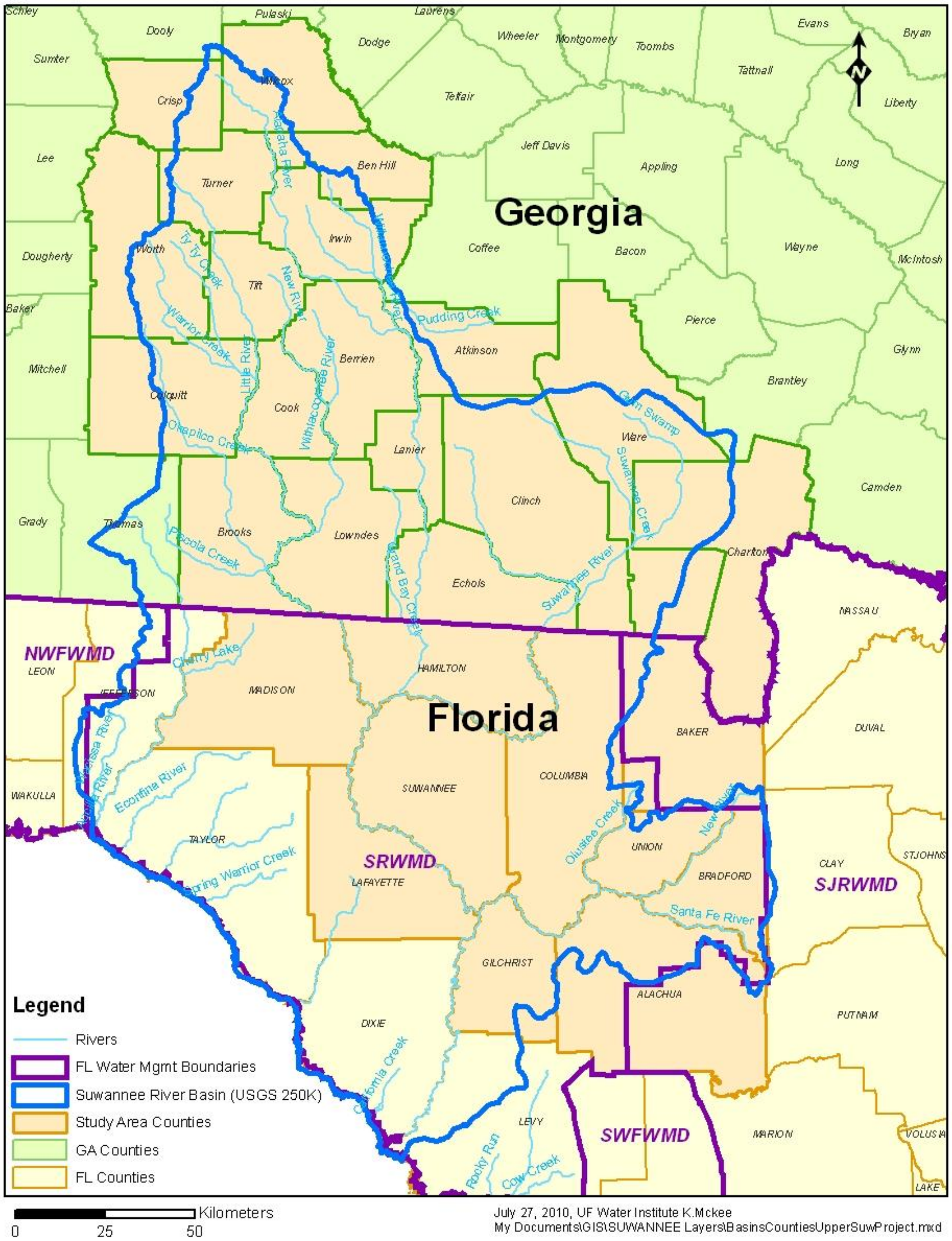

Figure 1. Study area (selected counties) in the Suwannee River Basin showing county and Florida water management district boundaries (Suwannee River Water Management (SRWMD), St. Johns River Water Management District (SJRWMD), Southwest Florida Water Management District (SWFWMD), and Northwest Florida Water Management District (NWFWMD)).

1. Introduction

1.1 Geology and Hydrology of the Study Area

The Floridan aquifer system (FAS) is one of the most productive aquifers in the world and underlies an area of about 100,000 square miles in southern Alabama, southeastern Georgia, southern South Carolina, and all of Florida (Long, 2001). This aquifer provides approximately 60% of all the fresh groundwater withdrawn in the state of Florida (FDEP, 2008, Marella 2005).

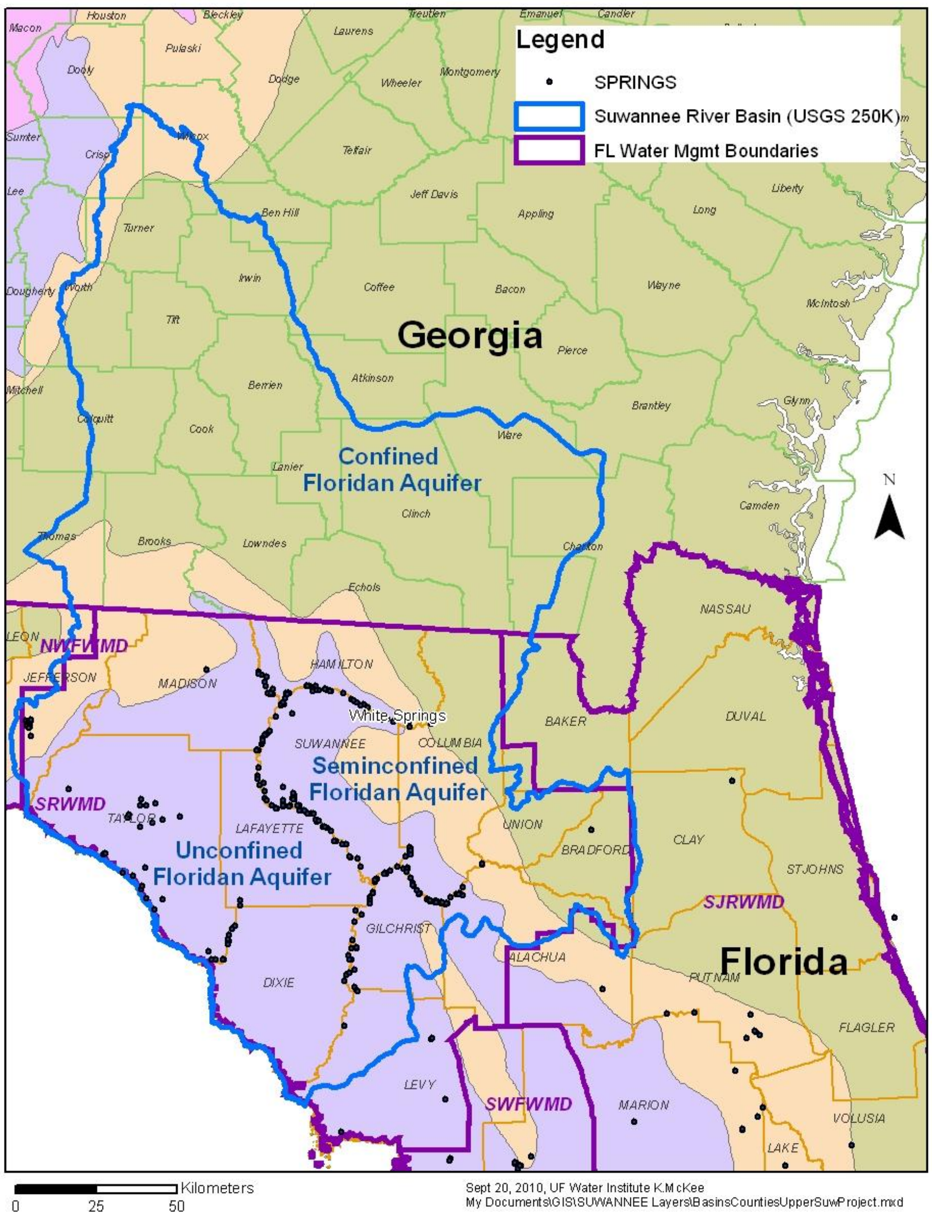

Figure 1.1. Confinement characterization of the Floridan aquifer around the Suwannee River basin in Georgia and Florida and Florida springs. (Sources: Floridan Aquifer - USGS, Water Resources Division, 1998; Springs in Florida – Florida Dept of Environmental Protection, Div of Water Resource Management, 2002)

The FAS is composed of a thick sequence of carbonate rocks (limestone and dolomite) of Tertiary age (Marella and Berndt, 2005). The system is at least 10 times more permeable than it's bounding upper and lower confining units. In most places, the system can be divided into the Upper and Lower Floridan aquifers, separated by a less-permeable confining unit. (http://coastgis.marsci.uga.edu/summit/aquifers_fla.htm). Most fresh water supplied in the SRB comes from the Upper Floridan Aquifer (UFA).

The SRB in Florida contains an abundance of springs that discharge from the FAS in karst areas with little sediment overlying the UFA (**Figure 1.1**). Base flow comes directly from many springs that are in close connection to the rivers. Springs emanating from the UFA receive recharge from upgradient areas where the UFA may be semi-confined or confined.

1.2 Rationale

Historic large-scale groundwater withdrawals in northeastern Florida and southeastern Georgia have lowered the potentiometric surface of the UFA more than 10 ft over a very large area (Bush and Johnston, 1988). The SRWMD has expressed concerns that FAS withdrawals to the east of its boundary with SJRWMD, and to the north of its boundary with Georgia, may have significantly affected river and/or spring discharges in its district, including the cessation of flow from White Springs.

As part of the U.S. Geological Survey (USGS) Regional Aquifer System Analysis (RASA) study, Bush and Johnston (1988) constructed a model of the predevelopment UFA potentiometric surface throughout the extent of the FAS. They also compared a potentiometric surface map representative of 1980 conditions to a predevelopment potentiometric surface and delineated areas where potentiometric declines exceed 10 feet in the southeastern U.S. (Bush and Johnston, 1988). Subsequent subregional USGS studies and other water management district (WMD) studies estimated potentiometric declines in more detail within coastal Georgia, northeast Florida, and central Florida. None of these studies quantified the effects of pumping across WMD and state boundaries on the Suwannee and Santa Fe river basins within SRWMD. There have been no studies conducted that have comprehensively examined rainfall, groundwater level and/or spring discharge time series data in comparison with historical groundwater withdrawals either within SRWMD, Georgia, or SJRWMD.

1.3 Project Goals

The purpose of this project was to evaluate the current available hydrologic time series data of groundwater levels, spring discharges, stream discharges, rainfall records and historical FAS withdrawal records to determine: 1) whether time-series trends exist or have previously existed, 2) whether statistical relationships exist among the available time series data, and 3) the similarity among the groundwater level time series throughout the study area as determined by cluster analysis.

2. Methods

Hydrologic data (groundwater withdrawals, groundwater levels, rainfall, streamflow, and spring discharge) were collected by station within the study area and combined into annual calendar year time series for the period 1980 to 2007. Annual average time series were used for groundwater level, streamflow and spring discharge. Total annual time series were used for rainfall. Only stations with more than 10 years of consistent data records were used for statistical analyses. Additional groundwater level data was analyzed (trend analysis and cluster analysis) in northeast Florida and southeast Georgia east of the study area (a later request from SJRWMD).

Groundwater withdrawal data (water use) were collected by county in the study area for five categories: public supply (PS), agriculture (AG), commercial / industrial / institutional (includes power and mining) (CII), domestic self-supply (DSS), and recreation. Water use data with continuous monthly records for more than 10 years were processed into total annual withdrawal time series for statistical analyses. Detailed information about data sources and collection methods are presented in chapter 3-7.

A flow chart illustrating the data collection and statistical analysis procedures is presented in **Figure 2.1**. A graphical evaluation with a locally weighted scatter plot smoothing (LOWESS) was first used to determine whether the time series of the hydrologic data show monotonic or piecewise trends (Cleveland, 1981). Trend detections (for both monotonic and piecewise trends) were then conducted using a nonparametric statistical test (Mann-Kendall) on residuals from each time series that were transformed using an autocorrelation filtration (Hamed, 2008; Hamed and Rao, 1998). Analysis was performed based on annual data to determine if long-term systematic trends existed. Therefore seasonality analysis was not performed. Trends in historic hydrologic data were determined based on the p-value and the slope. Per suggestions from the SJRWMD, we labeled the confidence level as:

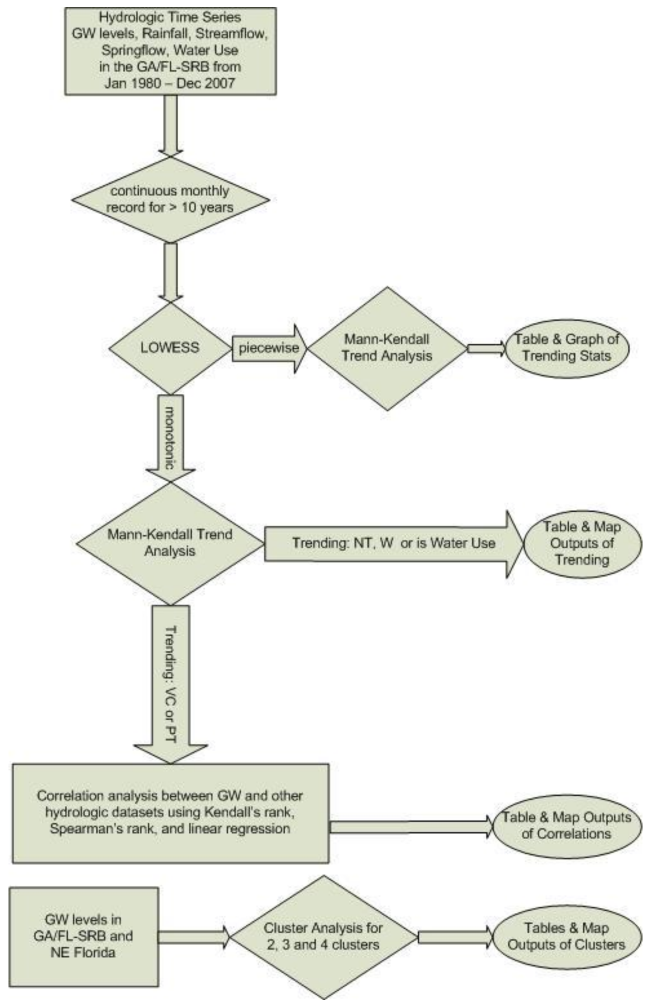

Figure 2.1. Flow chart illustrating the statistical analysis procedures.

- >95%, very certain (VC) (there is a trend),
- >90%, probably trending (PT),
- >80%, warning (W),
- <80%, no trend detected (NT)

Correlation analysis was conducted to evaluate the statistical relationships between groundwater level time series that showed probable or very certain monotonic trends and the nearest two rainfall and streamflow stations. The correlations between two time series were evaluated using the Spearman's rank, Kendall's rank, and linear regression analyses (Yue et al., 2002). No correlation analyses were conducted using the groundwater withdrawal time series due to lack of confidence in the integrity of this data (See chapter 8 for discussion).

A statistical cluster analysis was conducted on the groundwater level time series. Each groundwater time series was normalized by subtracting its long-term mean groundwater level from each observation and dividing by its long-term groundwater level standard deviation (Helstrup et al., 2007). The agglomerative heirarchical algorithm was used to cluster the data and the Euclidean distance function was used to determine the similarity between clusters.

S-PLUS software was used for analyses. EMT Software provided by the St. Johns River Water Management District was used to run the S-PLUS scripts in batch. Definitions and related explanations of the statistical procedures are summarized below.

2.1 Locally Weighted Scatter Plot Smoothing (LOWESS)

Most trend analysis tests depend on the assumption that the trend is monotonic (i.e. doesn't change direction) over the time period of interest. Both visual inspection and mathematical techniques can be used to determine if the monotonic assumption is valid, and this should be done before any other type of trend analysis. LOWESS is one of the techniques that can help visualize overall trends in a time-series, and can mathematically identify times of change or "break-points."

LOWESS is short for "locally weighted regression." It is a smoothing algorithm that gives the linear regression fit over successive windows in the time-series (Cleveland, 1981). Unlike the other statistical methods, the LOWESS method does not test hypotheses, but rather identifies break points in the time-series. Break points are defined as times in the series when the slope of the trend changes sign (e.g., from increasing to decreasing, from mild to steep, etc.).

The behavior of the LOWESS regression function is controlled by the smoothing parameter. In general, the larger the smoothing parameter, the smoother the LOWESS line will be. Two smoothing parameters, 0.6 and 0.3, were used in this study to visually identify the break points. The smoothing parameter, q, is a number between $(d+1)/n$ and 1, with d denoting the degree of the local polynomial and n is the number of samples. The value of q is the proportion of data used in each fit. In general, the bigger the smoothing parameter, the fitting curve will be smoother and have a lower possibility to show a breakpoint.

2.2 Mann-Kendall Test

Hydrologic data are rarely normally distributed or independent (Cluis et al., 1989). Therefore, the nonparametric Mann-Kendall statistical test was used in this study for monotonic and piecewise trend analyses of the time series. The test compares the relative magnitudes of sample data rather than the data values themselves (Gilbert, 1987). One benefit of this test is that the data need not conform to any particular distribution. The data values are evaluated as an ordered time series. Each data value is compared to all subsequent data values. The initial value of the Mann-Kendall statistic, S, is assumed to be zero (i.e., no trend). If a data value from a later time period is higher than a data value from an earlier time period, S is incremented by one. On the other hand, if the data value from a later time period is lower than a data value sampled earlier, S is reduced by one. The net result of all such increments and decrements yields the final value of S. The null hypothesis of the Mann-Kendall test is:

Ho: No change has occurred over time (no trend).
The alternate hypothesis is:

Ha: A significant change has occurred over time, or that an increasing or decreasing trend is evident in the time series

2.3 Autocorrelation

The autocovariance function is an important tool for describing the serial (or temporal) dependence structure of a univariate time series (Hamed and Rao, 1998). It reflects how much correlation is present between lagged observations.

The Mann-Kendall analysis assumes minimal autocorrelations in the time series. However, many hydrological processes show some degree of autocorrelation. If autocorrelation is present, there is a chance that the Mann-Kendall analysis would suggest a trend, when in fact the trend significance is due to autocorrelation. A method to control for autocorrelation is to fit an autoregressive model to the time-series, then perform the trend test on the residuals using proper transformations.

2.4 Piecewise Trend

In a piecewise trend, the slope can change magnitude or direction within a time series. The trend and the slopes of the data are calculated after dividing the data into two parts determined by the date of change. The mean levels before and after this date are compared using the Mann-Kendall test, or suitable modification, to determine if they are different (Cluis et al., 1989).

2.5 Spearman's Rank Correlation

Spearman's rank correlation coefficient is a non-parametric measure of correlation – that is, it assesses how well an arbitrary monotonic function describes the relationship between two variables without making any other assumptions about the particular nature of the relationship between the variables (Maritz, 1981). The spearman's rank correlation coefficient is calculated:

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

where the n raw scores of two data series X_i, Y_i are converted to ranks x_i, y_i, and the differences $d_i = x_i - y_i$ between the ranks of each observation of the two variables are calculated. This test is typically used to determine whether the two measurement variables covary; i.e. whether, as one variable increases, the other variable tends to increase or decrease. It is a non-parametric alternative to correlation, and it is used when the data do not meet assumptions regarding normality, homoscedasticity and linearity. Spearman's rank correlation is also used when one or both of the variables consist of ranks. The null hypothesis of the Spearman's rank test is:

Ho: The rank of one variable does not covary with the rank of the other variable; in other words, as the rank of one variable increases, the rank of the other variable is not more likely to increase (or decrease).

2.6 Kendall's Rank Correlation

The Kendall rank correlation coefficient evaluates the degree of similarity between the ranks of two sets of measured data (Abdi, 2007). The Kendall rank correlation provides a distribution free test of the independence and a measure of strength of dependence between two variables. Kendall tau coefficient is defined as:

$$\tau = \frac{n_c - n_d}{\frac{1}{2}n(n-1)}$$

where n_c is the number of concordant pairs (i.e., pairs ranks with moving in the same direction), and n_d is the number of discordant pairs (i.e., pairs with ranks moving in different directions), in the data set (Kendall, 1939). The approach of Kendall is to count the number of concordant and discordant pairs between two ordered sets. This number gives a distance between sets called symmetric difference distance. Kendall coefficient of correlation is obtained by normalizing the symmetric difference by the total number of pairs such that it will take values between -1 and +1. The Kendall tau coefficient has the following properties: 1) If the agreement between the two rankings is perfect (i.e. the two rankings are the same) the coefficient has value 1; and 2) If the disagreement between the two rankings is perfect (i.e., one ranking is the reverse of the other) the coefficient has value -1. For all other arrangements the values lies between -1 and 1, and increasing values imply increasing agreement between the rankings. If the rankings are completely independent, the coefficient has value 0 on average (Kendall, 1939). The null hypothesis of the Kendall's rank test is:

Ho: The rank of one variable does not covary with the rank of the other variables; in other words, as the rank of one variable increases, the rank of the others are not more likely to increase (or decrease).

Spearman's rank correlation is satisfactory for testing a null hypothesis of independence between two variables but it is difficult to interpret when the null hypothesis is rejected. Kendall's rank correlation improves upon this by reflecting the strength of the dependence between the variables being compared.

2.7 Linear regression

Linear regression fits a straight line between two sets of variables, typically using a least squares approach which minimizes the sum of squares of the residuals of the data around the straight line. The least squares coefficient, R^2 ,can be interpreted as the fraction of the total variance of one variable that is "explained" by variation in the other, and is often used to indicate goodness-of-fit of the linear relationship between two sets of variables.

2.8 p-value

The p-value expresses the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true. The lower the p-value, the more "significant" is the result (depending on the null hypothesis).

The null hypothesis is usually a hypothesis of "no difference," e.g., no difference between group A and group B. If the p-value is less than the chosen confidence level, then you reject the null hypothesis (i.e. accept that your sample gives reasonable evidence to support the alternative hypothesis). It does not imply a "meaningful" or "important" difference and that must be derived considering the real-world relevance of the results. For the Mann-Kendall test, trends in historic hydrologic data were determined in this project based on the p-value and the slope. As suggested by the SJRWMD, we labeled the confidence level as listed in **Table 2.1.** The Mann-Kendall trend analysis is a two-end statistical test, so the p-values are two-tailed.

Table 2.1 Critical One-Tailed and Two-Tailed p-values at various confidence levels

Confidence Level	One tailed p-value	Two tailed p-value	Confidence
95%	0.05	0.025	Very Certain (VC)
90%	0.10	0.05	Probably Trending (PT)
80%	0.20	0.10	Warning (W)

2.9 Cluster Analysis

Cluster analysis is a process of grouping objects into subsets that have meaning in the context of a particular problem (Helstrup et al., 2007). Unlike classification, clustering does not rely on predefined classes. This analysis is based on a mathematical formulation of a measure of similarity. The main object of a cluster analysis is to find similarities between observations.

Heirarchical clustering analysis (HCA) is a common clustering technique which repeatedly links pairs of clusters until every data object is included in the hierarchy. Hierarchical clustering creates a hierarchy of clusters which may be represented in a tree structure called a dendrogram. The root of the tree consists of a single cluster containing all observations, and the leaves correspond to individual observations.

Algorithms for hierarchical clustering are generally either *agglomerative*, in which one starts at the leaves and successively merges clusters together; or *divisive*, in which one starts at the root and recursively splits the clusters. Agglomerative HCA (AHCA) begins with N clusters and combines the data into 1 cluster, while the divisive HCA (DHCA) divides the date into N clusters (Guler et al., 2002). Both types of HCA will yield similar results.

Any valid metric may be used as a measure of similarity between pairs of observations. The choice of which clusters to merge or split is determined by a linkage criterion, which is a function of the pairwise distances between observations. Commonly, distance functions, such as Manhattan and Euclidean are used to determine similarity. A distance function yields a higher value for pairs of objects that are less similar to one another.

In this study, AHCA with Euclidean distance function was selected for the cluster analysis of the groundwater level time series.

3. Groundwater Levels and Trends

Historic groundwater level data (in the upper Floridan) were collected for the study area in Florida and Georgia. The raw data were instantaneous elevation measurements in feet made on a periodic basis (ranging from daily to semi-annually). Those measurements were processed into annual averages (ft) for trend detection. Many of the groundwater stations have records longer than the study period; however, this report only presents the statistical analysis results for *the period between January 1980 and December 2007*. This chapter summarizes the groundwater level data collected and trend analysis results for this data period. **A supplemental report was also submitted to the district, which presents the trend analysis results for the entire period of record for the historic groundwater level data.**

The SRWMD currently has 181 wells measured monthly; 77 of them have long time recorders. Groundwater level data between 1980 and 2007 from 52 wells in the SRWMD that have at least 20 years of data with at least 2 measurements per year were combined into time series and labeled as *SRWMD Florida Groundwater* for trend analysis (**Section 3.1 and Appendix 1**). Units are feet above NGVD29.

Groundwater level data between 1980 and 2007 from seven wells with 20 years of data and at least 2 measurements per year were obtained from the USGS for the Georgia region of the study area. Those data were labeled as *USGS Georgia Groundwater* for trend analysis (**Section 3.2 and Appendix 2**). Units were in feet below land surface.

We received an additional set of groundwater level data from the SJRWMD for counties in northeastern Florida (Clay, Duval, Nassau, Putnam, and St Johns) and southeastern Georgia (Camden) that are east of the original study area. There were 73 wells with at least a 20 year record and 2 measurements per year between 1980 and 2007. Those data were labeled as *SJRWMD Groundwater* for trend analysis (**Section 3.3**). Units are feet above mean sea level.

3.1 SRWMD Florida Groundwater Trend

The 52 SRWMD groundwater wells with at least 20 years of data are located in 11 counties within the study area and each of the counties had at least three groundwater wells except Gilchrist County (**Figure 3.1**). The raw data were processed into annual averages.

Time series analysis was performed to statistically characterize each well time series as described in the methods section. LOWESS was used to determine whether the dataset contained monotonic or piecewise trends. Trend detections were conducted with the nonparametric statistical test (Mann-Kendall) on the residuals transformed using autocorrelation filtration (**Appendix 3**). Analysis was performed based on annual data to determine if long-term systematic trends existed. Therefore seasonality analysis was not performed. Finally, trends in historic groundwater levels were determined based on p-values and slopes (**Table 3.1**). A total of 9 wells were identified with either very certain (1), probably trending (2), or warning (6) monotonic trends, and all trends were downward (**Figure 3.1** and **Table 3.2**).

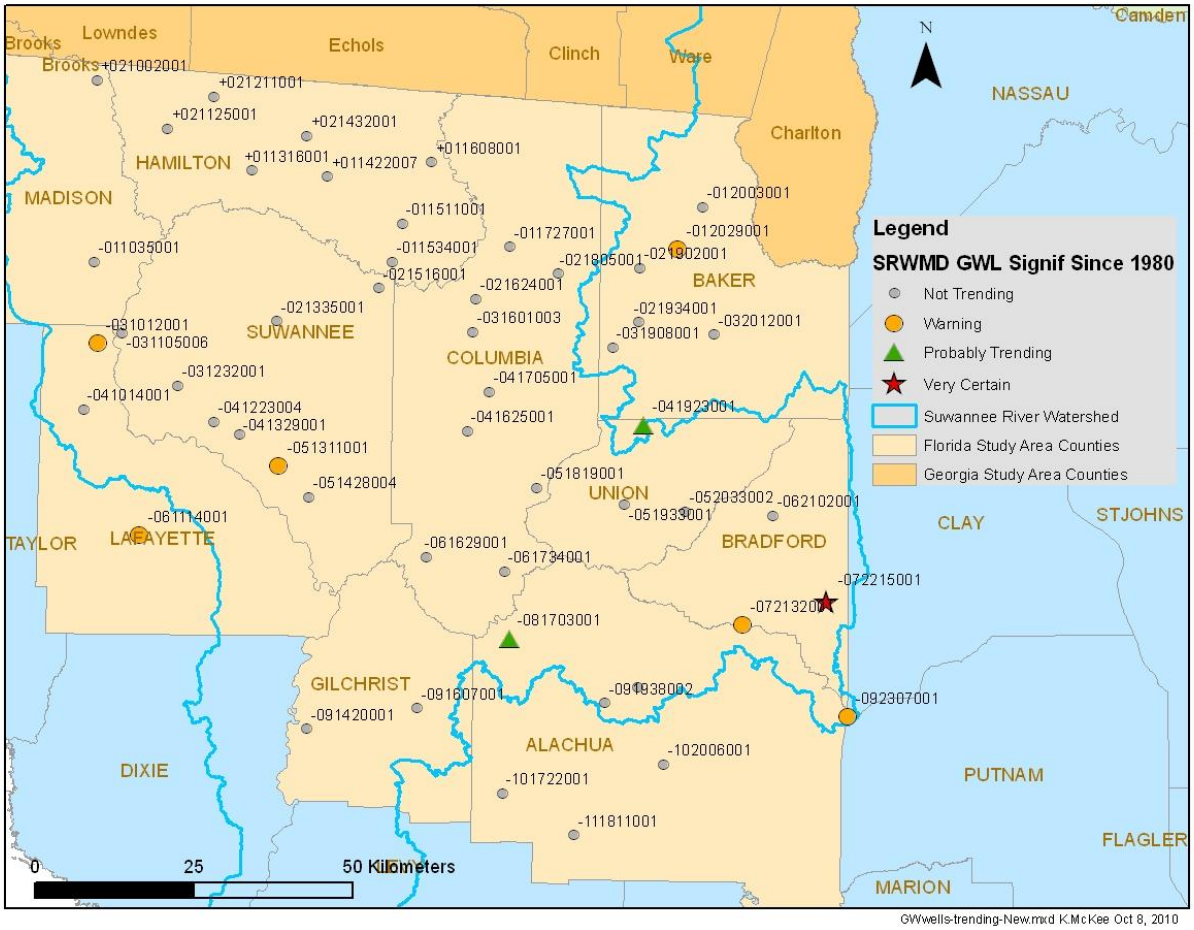

Figure 3.1. Map of 52 SRWMD groundwater wells utilized for trend analysis and classification of trends. All trends are downwards.

3.2 USGS Georgia Groundwater Trend

Seven wells in the Georgia study area had data records longer than 20 years. These groundwater wells were located in six counties within the state of Georgia (**Figure 3.1**). The raw data were processed by calculating annual averages.

The same statistical analysis described above was conducted on this dataset (**Appendix 4**). Trends in the data were determined based on the p-value and the slope (**Table 3.3).** A total of 4 wells were identified with very certain (3) or warning (1) monotonic trends, and all the trends were downward (**Figure 3.2** and **Table 3.4**).

GA-GWL-trending-NEW.mxd K.McKee Oct 8, 2010

Figure 3.2. Map of 7 USGS groundwater wells used for trend analysis and classification of trends in Georgia. All trends are downwards.

3.3 SJRWMD Groundwater Trend

After initial data analysis for the study area was completed, the St. Johns Water Management District (SJRWMD) requested trend analyses for additional groundwater levels in northeastern Florida (Clay, Duval, Nassau, Putnam, and St Johns Counties) and southeastern Georgia (Camden County) outside the previously defined study area (**Figure 3.3**). The same statistical analysis was conducted on this dataset (**Appendix 5**). There were 73 additional wells with at least a 20 year time period and 2 measurements per year, after omitting those that were already represented by the SRWMD groundwater level dataset. Trends in the data were determined based on the p-value and the slope (**Table 3.5).** A total of 18 wells were identified with very certain (8), probably trending (4), or warning (6) monotonic trends (**Figure 3.3**, **Table 3.4**). Of these trends, all were downward except one well with an upward trending slope in St. Johns County (ID 295357081294301). Figure 3.3 shows the distribution of the trending wells in the study area.

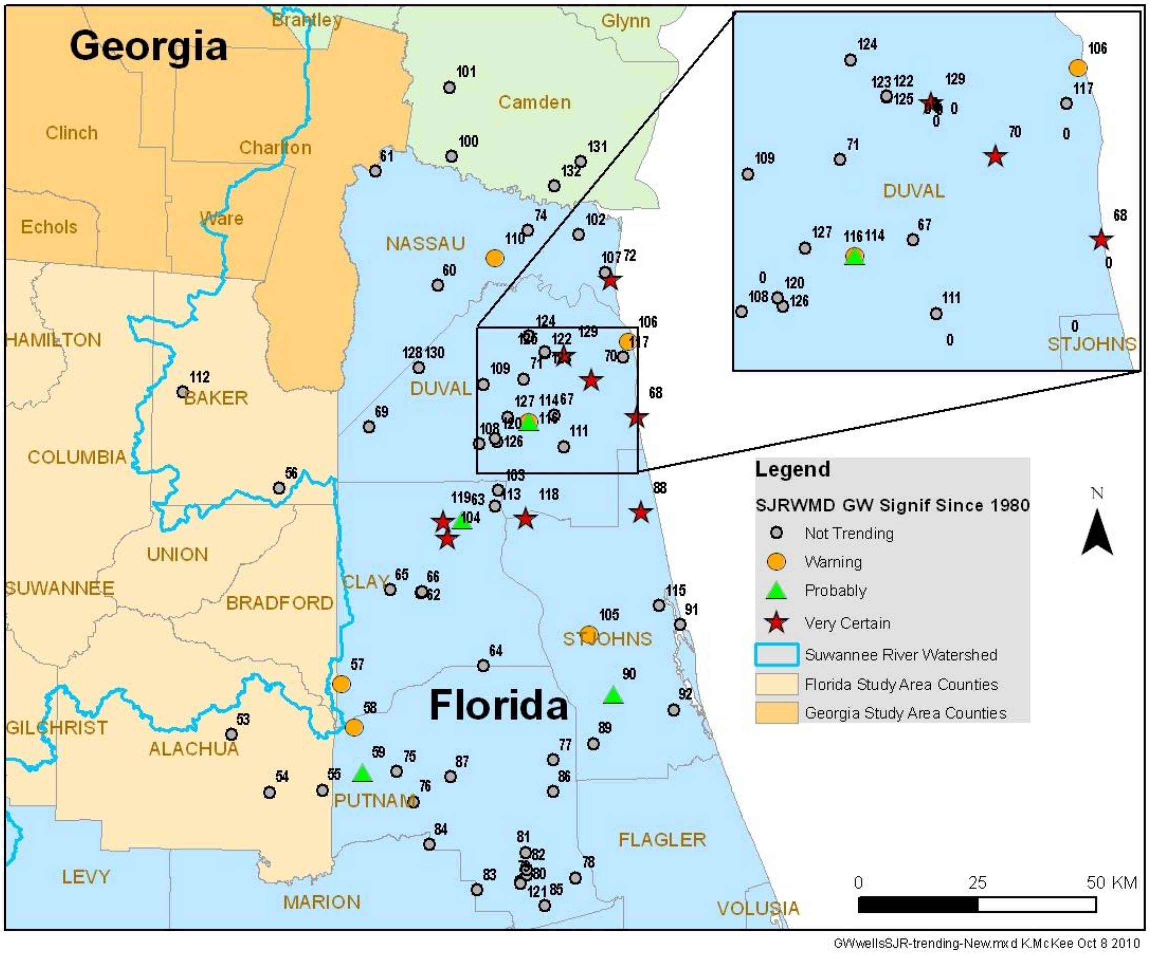

Figure 3.3. Map of 73 SJRWMD groundwater wells used for trend analyses and classification of trends. All trends are downward except #105 which trends upward. Map IDs correspond to station IDs listed in Table 3.5.

Table 3.1 Trend analysis results, with trend direction, of Florida annual groundwater levels from SRWMD, continuous time series between 1980 and 2007.

Site ID	County	SJRWMD Site ID	Trend Type	Slope (ft/y)	p-value	Trend & Direction
-111811001	Alachua	A-0004	M	-0.083	0.674	NT ↓
-092307001	Clay	C-0009	M	-0.232	0.053	**W** ↓
-081926001	Alachua	A-0056	M	-0.092	0.366	NT ↓
-081703001	Alachua	A-0002	M	-0.090	0.047	**PT** ↓
-072215001	Bradford	B-0011	M	-0.248	0.002	**VC** ↓
-072132001	Bradford	B-0012	M	-0.154	0.100	**W** ↓
-061734001	Colombia	CO0008	M	-0.068	0.116	NT ↓
-061629001	Columbia	NA	M	-0.075	0.207	NT ↓
-061114001	Lafayette	NA	M	-0.159	0.061	**W** ↓
-052033002	Union	NA	data not suitable for the analysis			
-051933001	Union	U-0004	M	-0.144	0.102	NT ↓
-051819001	Columbia	CO0005	M	-0.122	0.151	NT ↓
-051428004	Suwannee	NA	M	-0.216	0.122	NT ↓

Site ID	County	SJRWMD Site ID	Trend Type	Slope (ft/y)	p-value	Trend & Direction
-051311001	Suwannee	NA	M	-0.192	0.097	**W** ↓
-041923001	Union	U-0001	M	-0.227	0.036	**PT** ↓
-041705001	Columbia	CO0010	M	-0.162	0.154	NT ↓
-041625001	Columbia	CO0011	M	-0.151	0.407	NT ↓
-041329001	Suwannee	NA	M	-0.110	0.310	NT ↓
-041223004	Suwannee	NA	M	-0.068	0.452	NT ↓
-041014001	Lafayette	NA	M	-0.184	0.283	NT ↓
-032012001	Baker	BA0011	M	-0.163	0.152	NT ↓
-031908001	Baker	BA0015	M	0.011	0.922	NT ↑
-031601003	Columbia	NA	M	-0.148	0.458	NT ↓
-031232001	Suwannee	NA	M	-0.144	0.118	NT ↓
-031105006	Suwannee	NA	M	-0.058	0.516	NT ↓
-031012001	Lafayette	NA	M	-0.155	0.081	**W** ↓
-021934001	Baker	BA0024	M	-0.093	0.636	NT ↓
-021902001	Baker	BA0005	M	-0.079	0.675	NT ↓
-021805001	Columbia	CO0007	M	-0.172	0.160	NT ↓
-021624001	Columbia	NA	M	-0.220	0.214	NT ↓
-021516001	Suwannee	NA	M	-0.184	0.146	NT ↓
-021335001	Suwannee	SW0078	M	-0.218	0.186	NT ↓
-012029001	Baker	BA0018	M	-0.163	0.095	**W** ↓
-012003001	Baker	BA0009	M	-0.153	0.170	NT ↓
-011727001	Columbia	CO0117	M	-0.157	0.157	NT ↓
-011534001	Hamilton	H-0071	M	-0.178	0.210	NT ↓
-011511001	Hamilton	NA	M	-0.149	0.245	NT ↓
-011035001	Madison	NA	M	-0.227	0.172	NT ↓
+010719001	Madison	NA	M	-0.122	0.109	NT ↓
+011316001	Hamilton	NA	M	-0.062	0.517	NT ↓
+011422007	Hamilton	H-0072	M	-0.137	0.296	NT ↓
+011608001	Hamilton	NA	M	-0.142	0.271	NT ↓
+021002001	Madison	NA	M	-0.035	0.717	NT ↓
+021125001	Hamilton	NA	M	-0.091	0.330	NT ↓
+021432001	Hamilton	H-0073	M	-0.106	0.391	NT ↓
-102006001	Alachua	A-0019	M	0.026	0.884	NT ↑
-101722001	Alachua	A-0068	P	0.542	0.076	**W**↑
				-0.064	0.624	NT ↓
-091938002	Alachua	A-0075	P	0.059	0.967	NT ↑
				-0.516	0.112	NT ↓
-091607001	Gilchrist	GI0065	P	1.397	0.174	NT ↑
				-0.358	0.315	NT ↓
-091420001	Gilchrist	NA	P	0.477	0.174	NT ↑
				-0.098	0.284	NT ↓
-062102001	Bradford	B-0010	P	0.277	0.119	NT ↑
				-0.050	0.502	NT ↓
+021211001	Hamilton	NA	P	0.247	0.502	NT ↑
				-0.287	0.322	NT ↓

M=Monotonic; P=Piecewise; NA=not available, VC=Very Certain, PT=Probably Trend, W=Warning, NT=No Trend;

Table 3.2 Summary of monotonic trends (all downward) of SRWMD Florida annual groundwater level time series.

Label	Count	Site ID
Very Certain	1	-072215001
Probably Trend	2	-081703001 -041923001
Warning	6	-092307001 -072132001 -061114001 -051311001 -031012001 -012029001

Table 3.3 Trend analysis results, with trend direction, of Georgia annual groundwater levels from USGS, continuous time series between 1980 and 2007.

Site ID	County	Trend Type	Slope (ft/y)	p Value	Trend & Direction
312712082593301	Tift	M	-0.856	0.000	**VC** ↓
310706082155101	Ware	M	-0.189	0.068	**W** ↓
304942082213801	Charlton	M	-0.118	0.197	NT ↓
313146083491601	Worth	M	-0.658	0.000	**VC** ↓
310813083260301	Cook	M	-0.361	0.000	**VC** ↓
314330084005402	Worth	P	0.321	0.059	**W** ↑
			0.166	0.602	NT ↑
304949083165301	Lowndes	P	-0.156	0.591	NT ↓
			0.033	0.880	NT ↑

M=Monotonic; P=Piecewise; NA=not available, VC=Very Certain, PT=Probably Trend, W=Warning, NT=No Trend;

Table 3.4 Summary of monotonic trends (all downward) of USGS Georgia annual groundwater level time series.

Label	Count	Site ID
Very Certain	3	310813083260301 312712082593301 313146083491601
Probably Trend	0	
Warning	1	310706082155101

Table 3.5 Trend analysis results, with trend direction, of Florida annual groundwater levels from SJRWMD, continuous time series between 1980 and 2007. Map IDs are used in Figure 3.3.

Map ID	Well ID #	County	Trend Type	Slope (ft/y)	p-value	Trend and Direction
53	A-0001	Alachua	M	-0.31	0.12	NT↓
54	A-0005	Alachua	M	-0.07	0.50	NT↓
55	A-0071	Alachua	M	-0.14	0.35	NT↓
56	BA0019	Baker	M	-0.19	0.14	NT↓
57	C-0120	Clay	M	-0.24	0.06	**W**↓
58	P-0001	Putnam	M	-0.23	0.06	**W**↓
59	P-0008	Putnam	M	-0.27	0.05	**PT**↓

Map ID	Well ID #	County	Trend Type	Slope (ft/y)	p-value	Trend and Direction
60	N-0051	Nassau	data not suitable for the analysis			
61	WN0018	Nassau	M	-0.08	0.54	NT↓
62	C-0018	Clay	M	-0.10	0.31	NT↓
63	C-0094	Clay	M	-0.24	0.04	**PT**↓
64	C-0123	Clay	M	-0.04	0.79	NT↓
65	C-0128	Clay	M	-0.15	0.33	NT↓
66	C-0607	Clay	M	-0.12	0.19	NT↓
67	D-0094	Duval	M	0.00	0.99	NT
68	D-0160	Duval	M	-0.31	0.00	**VC**↓
69	D-0254	Duval	M	0.00	0.97	NT
70	D-0424	Duval	M	-0.35	0.02	**VC**↓
71	D-0667	Duval	M	-0.15	0.11	NT↓
72	N-0046	Nassau	M	-0.31	0.01	**VC**↓
73	N-0051	Nassau	M	-0.06	0.68	NT↓
74	N-0121	Nassau	M	0.13	0.40	NT↑
75	P-0016	Putnam	M	-0.19	0.26	NT↓
76	P-0017	Putnam	M	-0.07	0.78	NT↓
77	P-0172	Putnam	M	-0.06	0.26	NT↓
78	P-0242	Putnam	M	-0.13	0.18	NT↓
79	P-0270	Putnam	M	0.00	0.96	NT
80	P-0373	Putnam	M	-0.08	0.33	NT↓
81	P-0408	Putnam	M	-0.06	0.43	NT↓
82	P-0416	Putnam	M	-0.08	0.39	NT↓
83	P-0427	Putnam	M	0.01	0.91	NT↑
84	P-0450	Putnam	M	0.01	0.81	NT ↑
85	P-0469	Putnam	M	0.08	0.52	NT ↑
86	P-0474	Putnam	M	-0.05	0.56	NT↓
87	P-0510	Putnam	M	-0.05	0.56	NT↓
88	SJ0005	St. Johns	M	-0.25	0.01	**VC**↓
89	SJ0263	St. Johns	M	-0.08	0.19	NT↓
90	SJ0317	St. Johns	M	-0.15	0.05	**PT**↓
91	SJ0413	St. Johns	M	-0.04	0.69	NT↓
92	SJ0516	St. Johns	M	-0.04	0.49	NT↓
100	304830081481201	Camden, Ga	M	-0.51	0.43	NT↓
101	305627081473101	Camden, Ga	M	-0.05	0.88	NT↓
102	303939081312601	Nassau	M	0.08	0.45	NT ↑
103	301018081415101	Clay	M	-0.12	0.20	NT↓
104	300450081482801	Clay	M	-0.32	0.00	**VC**↓
105	295357081294301	St. Johns	M	0.10	0.10	**W** ↑
106	302724081244801	Duval	M	-0.11	0.06	**W**↓
107	303518081275001	Nassau	M	0.01	0.90	NT ↑
108	301537081441901	Duval	M	0.10	0.69	NT ↑
109	302227081435001	Duval	M	-0.09	0.41	NT↓
110	303658081422601	Nassau	M	-0.18	0.09	**W** ↓
111	301522081331301	Duval	M	-0.72	0.12	NT↓
112	302115082232201	Baker	M	-0.06	0.91	NT↓
113	300834081421301	Clay	M	-0.18	0.47	NT↓

Map ID	Well ID #	County	Trend Type	Slope (ft/y)	p-value	Trend and Direction
114	301817081374902	Duval	M	-0.23	0.05	**PT**↓
115	295713081203401	St. Johns	M	-0.06	0.33	NT↓
116	301817081374901	Duval	M	-0.20	0.06	**W**↓
117	302538081253101	Duval	M	-0.11	0.24	NT↓
118	300717081381001	St. Johns	M	-0.37	0.00	**VC**↓
119	300649081485901	Clay	M	-0.32	0.00	**VC**↓
120	301617081421601	Duval	M	-0.09	0.29	NT↓
121	292528081383501	Putnam	M	-0.04	0.52	NT↓
122	302608081354903	Duval	M	-0.05	0.56	NT↓
123	302608081354902	Duval	M	-0.05	0.62	NT↓
124	302801081375101	Duval	M	-0.10	0.36	NT↓
125	302608081354901	Duval	M	-0.05	0.62	NT↓
126	301551081415701	Duval	M	-0.05	0.63	NT↓
127	301844081403801	Duval	M	-0.03	0.71	NT↓
128	302416081522601	Duval	M	-0.03	0.77	NT↓
129	302550081331501	Duval	M	-0.56	0.00	**VC**↓
130	302416081522602	Duval	M	-0.09	0.23	NT↓
131	304756081311101	Camden, Ga	M	0.06	0.72	NT ↑
132	304512081343601	Camden, Ga	M	0.57	0.55	NT ↑

M=Monotonic; P=Piecewise; NA=not available, VC=Very Certain, PT=Probably Trend, W=Warning, NT=No Trend;

Table 3.6 Summary of monotonic trends (all downward except underlined Site ID is upward) of SJRWMD annual groundwater level time series (map IDs are in the parentheses).

Label	Count	Map ID			
Very Certain	7	D-0160 (68)	N-0046 (72)	SJ0005 (88)	300450081482801 (104)
		300717081381001 (118)	300649081485901 (119)	302550081331501 (129)	D-0424 (70)
Probably Trend	4	P-0008 (59)	SJ0317 (90)	301817081374902 (114)	C-0094 (63)
Warning	6	C-0120 (57)	P-0001 (58)	<u>295357081294301 (105)</u>	302724081244801 (106)
		303658081422601 (110)	301817081374901 (116)		

4. Rainfall

Total monthly precipitation and mean monthly temperature data from 1980 through 2007 were downloaded from NCDC webpage (http://www.ncdc.noaa.gov/oa/ncdc.html). A total of 44 stations are located within the study area, 22 in Florida (mainly in SRWMD) and 22 in Georgia. Following is a detailed description of the data sets.

4.1 Florida Rain Trend

The rainfall data from 22 stations in Florida provide good coverage of the SRWMD within the state of Florida (**Figure 4.1**). The raw data from NCDC were monthly totals in hundredths of an inch. As long as there were at least 8 monthly observations missing monthly values were replaced by the annual average of the available observations for that year. The monthly totals were then summed into annual totals and the units were converted to inches (**Appendix 6**).

The statistical analyses (i.e. LOWESS and Mann-Kendall) described previously were conducted on the dataset (**Appendix 7**). Trends in the data were determined based on the p-value and the slope (**Table 4.1).** One rain station in Dixie County was identified with a Very Certain downward trend (**Table 4.2**). **Figure 4.1** shows the distribution of the rain stations, with trend classification, in the study area.

Figure 4.1. Florida rain stations analyzed in the study area. One station had a downward trend.

Table 4.1 Trend analysis results, with trend direction, of Florida annual rainfall time series from NCDC, continuous time series between 1980 and 2007.

Site ID	County	Site Name	Trend Type	Slope (in/y)	p-Value	Trend & Direction
83321	Alachua	Gainesville 3 WSW	data not suitable for the analysis			
83322	Alachua	Gainesville 11 WNW	M	-0.45	0.71	NT↓
83326	Alachua	Gainesville Reg AP	M	-0.12	0.61	NT↓
83956	Alachua	High Springs	M	-0.31	0.14	NT↓
84327	Alachua	Island Grove	data not suitable for the analysis			
83470	Baker	Glen St Mary 1W	M	0.15	0.51	NT↑
84723	Bradford	Lake Butler	data not suitable for the analysis			
88529	Bradford	Starke	data not suitable for the analysis			
84731	Columbia	Lake City 2E	M	-0.22	0.47	NT↓
85705	Clay	Middleburg	data not suitable for the analysis			
82008	Dixie	Cross City 1E	M	-0.67	0.01	**VC**↓
88565	Dixie	Steinhatchee 6 ENE	M	-0.59	0.16	NT↓
84394	Hamilton	Jasper	M	-0.13	0.53	NT↓
85539	Lafayette	Mayo	M	-0.18	0.32	NT↓
89120	Levy	Usher Towr	M	-0.12	0.87	NT↓
85275	Madison	Madison	M	-0.31	0.12	NT↓
85099	Suwannee	Live Oak	M	-0.26	0.44	NT↓
87025	Taylor	Perry	M	-0.02	0.95	NT↓
84366	Duval	Jacksonville Beach	M	0.03	0.91	NT↑
84358	Duval	Jacksonville Intl AP	M	0.19	0.48	NT↑
81978	Putnam	Crescent City	M	-0.16	0.41	NT↓
82915	Putnam	Federal Point	M	-0.29	0.32	NT↓

M=Monotonic; P=Piecewise; NA=not available, VC=Very Certain, PT=Probably Trend, W=Warning, NT=No Trend;

Table 4.2 Summary of the trends (monotonic trend downwards) of Florida rain time series

Label	**Count**	**Site ID**
Very Certain	1	82008↓
Probably Trending	0	
Warning	0	

4.2 Georgia Rain Trend

The rainfall data from 22 stations in Georgia provided adequate coverage of the study area within the state of Georgia (**Figure 4.2)**. The rain stations are located in 14 counties. The raw data from NCDC were monthly totally in hundredth-inches. As long as there were at least 8 monthly observations, missing monthly values were replaced by the annual average of the available observations for that year. The monthly totals were then summed into annual totals and the units were converted to inches (**Appendix 8**).

The same statistical analyses were conducted on the dataset (**Appendix 9**). Trends in the data were determined based on the p-value and the slope (**Table 4.3).** No trends were detected for the dataset. **Figure 4.2** shows the distribution of the rain stations in the study area.

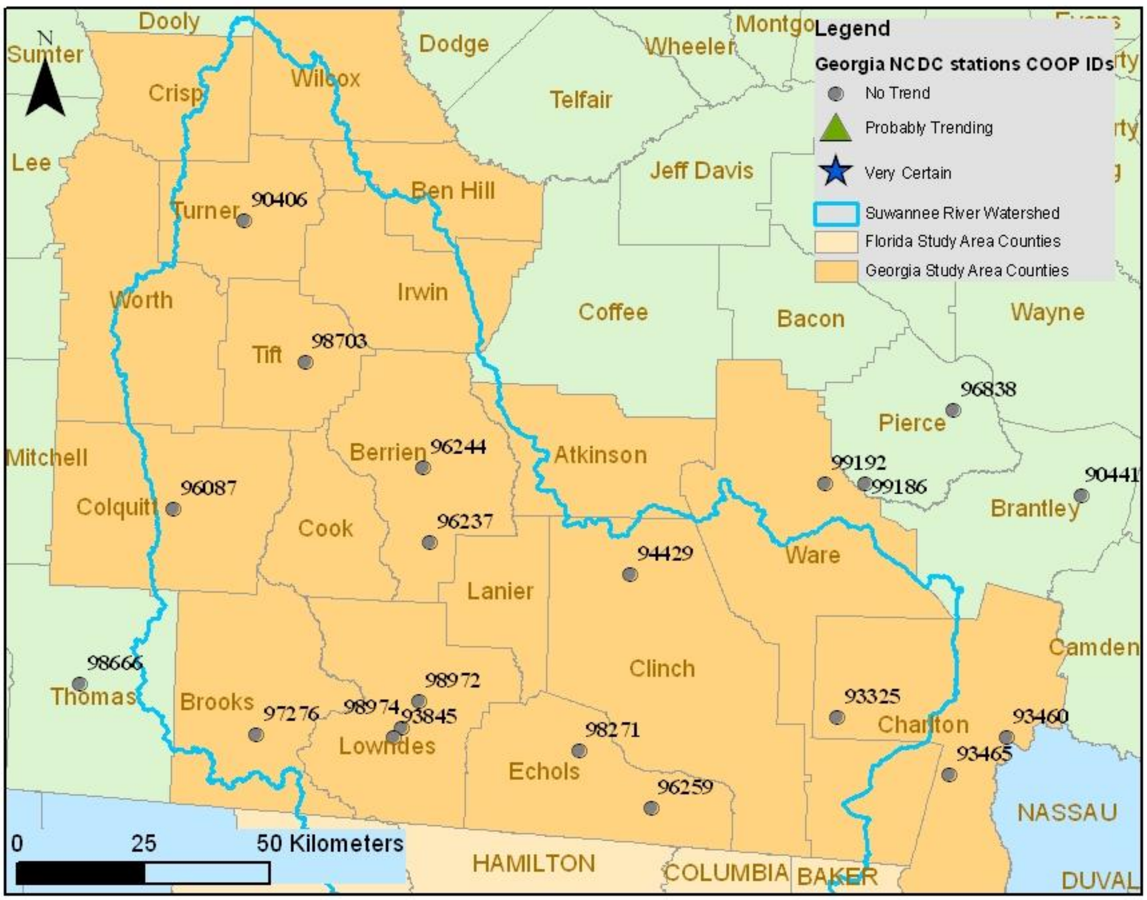

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Figure 4.2. Georgia rain stations analyzed for trends in the study area. No trends were detected.

Table 4.3 Trend analysis results, with direction, of Georgia rain annual time series, continuous time series between 1980 and 2007.

Site ID	County	Site Name	Trend Type	Slope (in/y)	p-Value	Trend & Direction
96237	Berrien	Nashville 5 SSE	data not suitable for the analysis			
96244	Berrien	Nashville 4N	M	-0.40	0.40	NT↓
96219	Brantley	Nashville 6NE	M	0.50	0.42	NT↑
90441	Brantley	Atkinson 2 W	data not suitable for the analysis			
97276	Brooks	Quitman 2 NW	M	-0.20	0.42	NT↓
93325	Charlton	Fargo 17 NE	M	0.39	0.23	NT↑
93460	Charlton	Folkston 3 SW	M	-0.01	0.98	NT↓
93465	Charlton	Folkston 9 SW	M	0.03	0.88	NT↑
94429	Clinch	Homerville 5 N	M	-0.31	0.18	NT↓
96087	Colquitt	Moultrie 2 ESE	M	-0.02	0.95	NT↓
96259	Echols	Needmore 2 W	data not suitable for the analysis			
98271	Echols	Statenville 6 NE	data not suitable for the analysis			
93845	Lowndes	Valdosta Reg AP	data not suitable for the analysis			
98972	Lowndes	Valdosta 3 E	M	0.63	0.57	NT↑
98974	Lowndes	Valdosta 2 S	data not suitable for the analysis			
96838	Pierce	Patterson	M	0.15	0.54	NT↑
99186	Pierce	Waycross 4 NE	M	0.12	0.63	NT↑
98666	Thomas	Thomasville 3 NE	M	-0.30	0.42	NT↓
98703	Tift	Tifton	M	-0.19	0.24	NT↓
90406	Turner	Ashburn 3 ENE	M	0.09	0.73	NT↑
99192	Ware	Waycross Ware Co AP	M	0.00	1.00	NT
92361	Worth	Crisp Co Pwr Dam	M	0.10	0.97	NT↑

M=Monotonic; NA=not available, VC=Very Certain, PT=Probably Trend, W=Warning, NT=No Trend;

5. Streamflow

Historic streamflow data from USGS stations with daily records were obtained. Data from 22 stations, 13 in Florida and 9 in Georgia that had more than 10 years of data between 1980 and 2007.

5.1 Florida Streamflow Trend

The streamflow data from the13 stations in Florida that had more than 10 years of data between 1980 and 2007 were obtained from the USGS database (**Figure 5.1**). The raw data were daily measurements of the flow discharge rate in cubic foot per second (cfs). Those raw data were processed by averaging against the number of records in each year to make the annual average time series in cfs (**Appendix 10**). The slope of these time series, therefore has units of cfs/year.

Figure 5.1. USGS streamflow stations in Florida used for trend analysis. Trending station is downward.

The statistical analyses described for groundwater and rainfall data were conducted on this dataset (**Appendix 11**). Trends in the data were determined based on the p-value and the slope (**Table 5.1).** None of the stations was identified to have a trend. **Figure 5.1** shows the location of the streamflow station in the Florida portion of the study area.

Table 5.1 Trend analysis results of Florida USGS streamflow time series, continuous time series between 1980 and 2007.

Site ID	County	Site Name	Trend Type	Slope (cfs/y)	p-Value	Trend & Direction
2228500	Baker	N Prong St. Mary's at Moniac, GA	M	4.07	0.58	NT↑
2231000	Baker	St. Marys Nr McClenny	M	-5.68	0.56	NT ↓
2315500	Columbia	Suwannee River At White Springs	M	-22.90	0.51	NT ↑
2319000	Hamilton	Withlacoochee River Nr Pinetta	M	-16.00	0.56	NT ↓
2319500	Suwannee	Suwannee River At Ellaville	M	-77.21	0.39	NT ↓
2320000	Suwannee	Suwannee River At Luraville	M	-276.74	0.61	NT ↓
2320500	Suwannee	Suwannee River At Branford	M	-76.60	0.41	NT ↓
2321000	Bradford	New River Nr Lake Butler Fla	M	-3.36	0.72	NT ↓
2321500	Union	Santa Fe River At Worthington Springs	M	-7.48	0.28	NT ↓
2322500	Columbia	Santa Fe River Nr Fort White	M	-21.49	0.16	NT ↓
2322800	Suwannee	Santa Fe River Nr Hildreth	data not suitable for the analysis			
2323500	Gilchrist	Suwannee River Nr Wilcox	M	-166.20	0.13	NT ↓
2320700	Alachua	Santa Fe River at Graham	M	-0.66	0.39	NT ↓

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend; M=Monotonic

5.2 Georgia Streamflow Trend

Daily stream data from 9 stations in Georgia that had more than 10 years of data between 1980 and 2007 were obtained from the USGS database (**Figure 5.2**). The raw data were monthly average measurements of the flow discharge rate in cubic foot per second (cfs). Those raw data were processed by averaging against the number of records in each year to make the annual average time series in cfs (**Appendix 12**). The slope of those time series, therefore, has units of cfs/year.

The same statistical analyses were conducted on this dataset (**Appendix 13**). Trends in the data were determined based on the p-value and the slope (**Table 5.2).** None of the stations was identified to have a trend. **Figure 5.2** shows the distribution of the streamflow stations in the Georgia portion of the study area.

Figure 5.2. USGS streamflow stations in Georgia (no trends were detected).

Table 5.2 Trend analysis results of Georgia streamflow time series, continuous time series between 1980 and 2007. M=Monotonic; NT=No Trend

Site ID	County	Site Name	Type	Slope (cfs/y)	p-value	Trend, Dir
02226500	Ware	Satilla River near Waycross, GA	M	-19.02	0.319	NT ↓
02314500	Clinch	Suwannee River at US 441, at Fargo, GA	M	-9.64	0.621	NT ↓
02316000	Berrien	Alapaha R Alapaha, GA	data not suitable for the analysis			
02317500	Echols	Alapaha R Statenville, GA	M	-11.50	0.512	NT ↓
02318000	Cook	Little River near Adel, GA	data not suitable for the analysis			
02318500	Brooks	Withlacoochee River at Us 84, near Quitman, GA	M	-70.24	0.321	NT ↓
02318700	Brooks	Okapilco Creek at Ga 33, near Quitman, GA	M	-3.24	0.457	NT ↓
02350512	Worth	Flint River at Ga 32, near Oakfield, GA	M	-18.36	0.820	NT ↓
023177483	Lowndes	Withlacoochee River at Mcmillan Rd	M	-2.88	0.855	NT ↓

6. Spring Flow

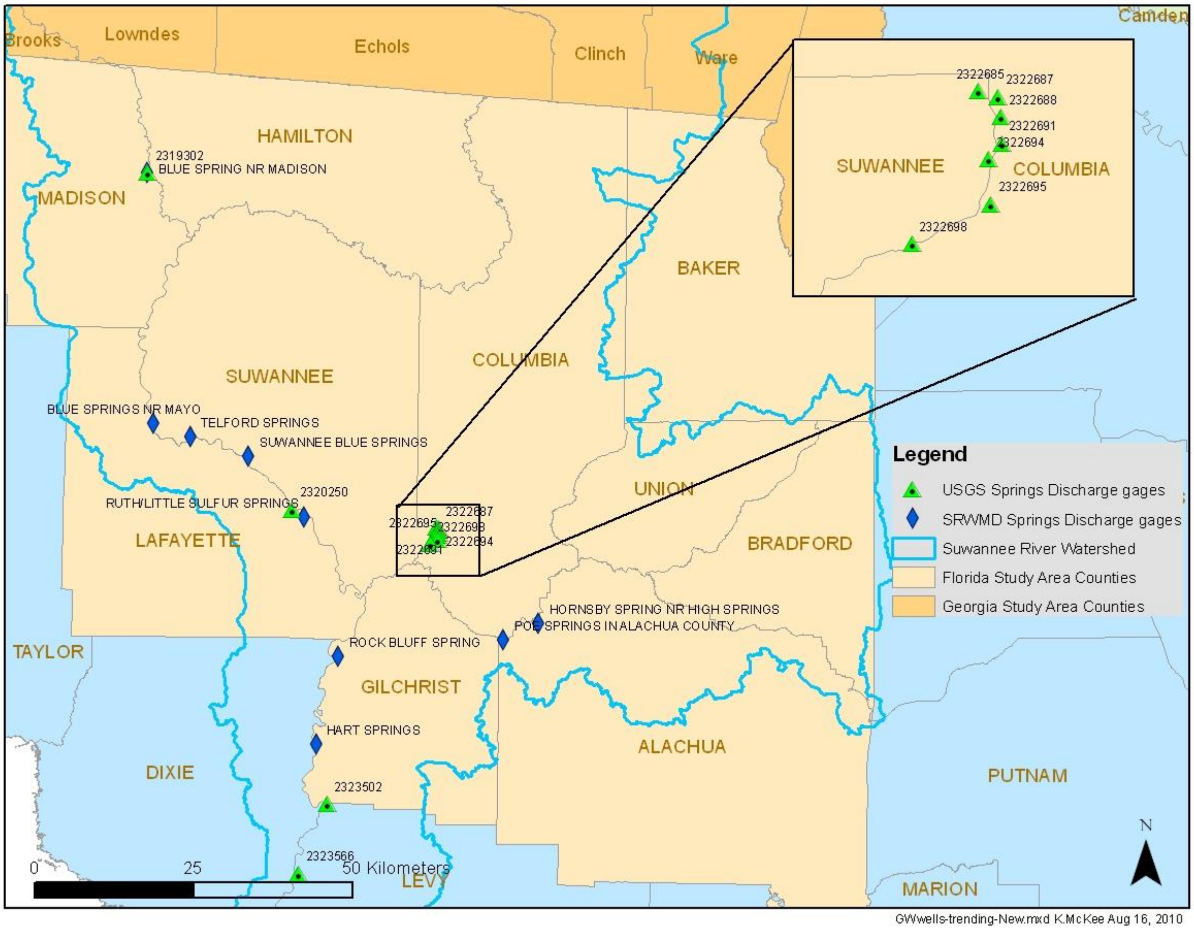


Figure 6.1. USGS and SRWMD springs discharge gauges in Florida (no trends were detected).

6.1 SRWMD Spring Discharge Data

The spring flow data from 9 stations were obtained from the SRWMD database (**Figure 6.1**). In general, these time series were characterized by single flow measurements taken with a frequency less than 12 measurements per year. Because at most 10 years of sporadic data were available for the spring flow, it was not possible to use them for the statistical analysis (**Table 6.1**).

Table 6.1 Summary of the SRWMD spring data in Florida

River	Spring Name	Start Year	# of Years
Santa Fe	Hornsby	1997	6
Suwannee	Telford	1997	9
Suwannee	Hart	1997	9
Santa Fe	Poe	1997	10
Suwannee	Rock Bluff	1997	10

River	Spring Name	Start Year	# of Years
Suwannee	Ruth Little Sulfur	1997	10
Suwannee	Suwannee Blue	1997	10
Suwannee	Blue spring near high springs	1997	10
Withlacoochee	Blue springs nr Mayo	1997	10

6.2 USGS Spring Discharge Data

The monthly means for spring flow and gauge height for 11 stations (**Figure 6.1**) were downloaded from the USGS National Water Information System database online. All spring stations in this dataset were distinct from those in the SRWMD dataset except from Madison Blue spring. Because there were only 7 years of data at these stations, it was not possible to use them for the statistical analysis (**Table 6.2**).

Table 6.2 Summary of the USGS spring data in Florida

Site ID	County	Spring Name	Start Year	# of Years
02320250	Lafayette	Troy Spring Nr Branford	2002	7
02323502	Levy	Fanning Springs Nr Wilcox	2002	7
02323566	Levy	Manatee Spring Nr Chiefland	2002	7
02319302	Madison	Madison Blue Spring Nr Blue Springs	2002	7
02322694	Suwannee	Devil's Eye Spring Nr Hildreth	2002	7
02322685	Columbia	Ichetucknee Head Spring Nr Hildreth	2002	7
02322687	Columbia	Cedar Head Spring Nr Hildreth	2002	7
02322688	Columbia	Blue Hole Spring Nr Hildreth	2002	7
02322691	Columbia	Mission Springs Complex Nr Hildreth	2002	7
02322695	Columbia	Mill Pond Spring Nr Hildreth	2002	7
02322698	Columbia	Ichetucknee River at Dampier's Landing Nr Hildreth	2002	7

7. Groundwater Withdrawal

This section describes the data sources and trend analysis results for annual groundwater withdrawal totals from the Upper Floridan aquifer (millions of gallons per year) by county for Florida and Georgia. Categories used for summarizing time series of water use data were Public Supply (PS), Agriculture (AG), Commercial/Industrial/Institutional (includes power and mining) (CII), Domestic Self-Supply (DSS) and Recreation (when available).

7.1 Florida Data Sources

Annual PS and CII data and some annual DSS data for counties in the Florida portion of the study area were obtained from the Florida-USGS which coordinates the Florida Water-Use Program, a cooperative project between the USGS and the Florida Department of Environmental Protection (FDEP) (http://fl.water.usgs.gov/infodata/wateruse.html). This program publishes annual water use estimates for every county in Florida every five years (Marella 2009, Marella 2004). Annual county PS data from 1985-2005 and CII data every 5 years was available.

The USGS also coordinates with staff at SRWMD and the Florida Department of Environmental Protection to collect and review monthly water use data reported by permittees in the CII and PS categories. Most PS monthly data by county was available from the USGS for the SRWMD counties for 1981-1986, and 2006 to 2007. Data for 2006-2007 was incomplete and needed further investigation into permit files and FDEP usage reports. To fill in missing years of PS and CII data, the USGS had monthly water use records by permittee in the SRWMD from 1995 to 2005 that were analyzed and compiled into monthly totals.

Baker, Bradford and Alachua counties have areas with permits controlled by the SJRWMD. Monthly PS, CII and DSS data from 1981 to 2007 for those counties was obtained from the SJRWMD. Consultations with USGS staff were held to be sure that water withdrawal information was not redundant in these three county datasets (i.e., that water use by permit was not counted twice). Through careful inspection of SJRWMD and SRWMD upper Floridan withdrawal datasets, errors in the CII and PS were investigated and fixed. For some missing data points (monthly withdrawals by permittees or monthly by county) missing data were estimated as described in the sections below (see **Appendix 14** for monthly withdrawals by county for PS and CII).

7.2 Georgia Data Sources

Annual average groundwater withdrawals (gallons per day) for PS, CII, DSS, and AG for every 5 years from 1980 to 2005 were obtained from the USGS Georgia Water-Use Program, an effort between the U.S. Geological Survey (USGS) and the Georgia Environmental Protection Division (GaEPD). See http://ga.water.usgs.gov/pubswu.html for publications related to Georgia water use. Data summarized in this report is millions of gallons per day for the areal fraction of the county within the SRB (i.e. total county withdrawals were scaled by fraction of the county within the SRB). USGS obtained water-use data from GaEPD data files and a variety of Federal, State, and local sources (Fanning, 2003). The USGS provided additional years (2006-2007) of data for individual users/permittees upon request.

7.3 Methods Used to Evaluate Groundwater Withdrawal Data

7.3.1 PS Data

Florida total monthly public supply data by county were calculated based on monthly reported groundwater pumping for individual permitted users (data from SRWMD and SJRWMD**) (Appendix 14).** If missing, estimates of monthly usage for individual users were made based on expert knowledge of Rich Marella at USGS. Public supply data for Georgia were generated by USGS in Georgia based on reporting of major public suppliers in the basin on an annual basis. For Georgia and Florida, monthly estimates were made for missing years when years on either side were very similar (within 15%) or quantities were very small (< 1 mgd). Monthly values were then summed to obtain annual county values for PS.

7.3.2 CII Data

Florida total monthly commercial/Industrial/Institutional (including power and mining) data were calculated based on monthly reported groundwater pumping for each individual permitted user (data from SRWMD and SJRWMD) **(Appendix 14)**. If missing, estimates of monthly usage for individual users were made based on expert knowledge of Rich Marella at USGS. CII data for Georgia were generated by USGS in Georgia based on reporting of major users in the basin on an annual basis. For Georgia and Florida, monthly estimates were made for missing years when years on either side were very similar (within 15%) or quantities were very small (< 1 mgd). Monthly values were then summed to obtain annual county values for CII.

7.3.3 Recreational Data

The availability of recreational groundwater withdrawal data was minimal and was reported when available from USGS reports.

7.3.4 DSS Data

Richard Marella, USGS water use expert, recommended that for this project total DSS water use be calculated by multiplying the population dependent on DSS in each county by the following state-wide estimates of DSS per capita usage supplied by the USGS:

- For 1980 to 1999: 108 gallons.
- For 2000: 106 gallons,
- For 2002 to 2004: 103 gallons.
- For 2005 to 2007: 95 gallons.

The population depending on domestic self supply was calculated by subtracting the population that was served by public supply (data from USGS) from the total county population (data from Bureau of Economic and Business Research, University of Florida). Note that the statewide average per capita use estimates do not necessarily accurately represent water use for domestic self-supplied households in each individual county.

7.3.5 AG Water Data

Richard Marella, USGS water use expert, recommended that for this project AG water use be estimated by multiplying the reported/estimated crop acreage for each county by the irrigation water requirement taken from the National Engineering Handbook – Irrigation Guide for Florida (USDA, 2003). The National Engineering Handbook publishes estimated irrigation requirements for specific crops, by NOAA climatic zone, with separate requirements reported for normal and dry years.

For this project rainfall data by climate division, as defined by National Oceanic and Atmospheric Administration, was provided by the USGS in Florida and used to classify each year as dry or normal. We defined a dry year as a year when total annual rainfall was less than mean annual rainfall minus one standard deviation (statistics calculated using data from the past 50 years.) All other years were classified as normal. Figure 7.1 defines the NOAA climate divisions in Florida and Georgia. Our study area belongs to climate division two in Florida, and climate division eight in Georgia.

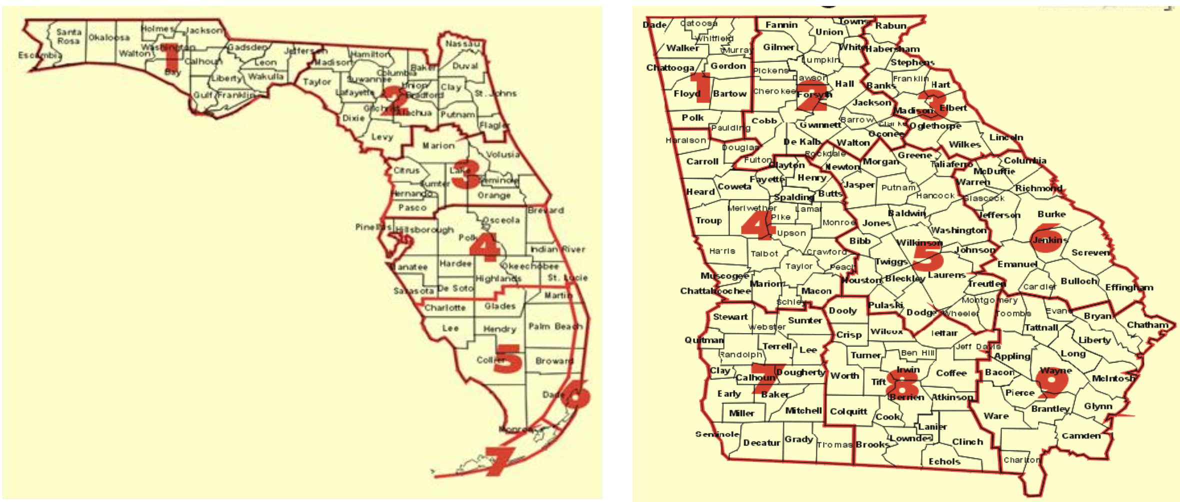


Figure 7.1. Climate divisions in Florida (A) and Georgia (B) (source: NOAA National Weather Service).

The number of acres planted per crop per county per year was obtained from the National Agricultural Statistical Service (NASS) webpage (NASS, 2009) and supplemented with information taken from paper annual Field Crop Summary reports at the University of Florida (published by the Florida Department of Agriculture and Consumer Services) which contain statewide estimates of field crops grown in Florida by county (**Appendix 15**). These paper reports were limited to major vegetable crops (peanuts, cotton, wheat, soy, corn, tobacco) and did not include many crops like tomatoes, blueberries, melons, nurseries, sod etc. Furthermore when a small number of acres are reported for a particular crop in any county, those counties are lumped into the category "other Counties". These and other types of reporting inaccuracies, together with the approximate nature of the published irrigation requirements reduce the reliability of agricultural water use estimates.

Appendix 15 summarizes estimated crop acres planted and estimated agricultural water use (millions gallon/year) by year and by county. Due to our lack of confidence in the data we sent the reported crop acreage to the IFAS extension agents in two Florida counties and discussed the numbers on the telephone. In both cases the agents felt the numbers of acres for more recent years of the reports were inaccurate (either too low, or missing certain crops entirely), however neither was able to provide more accurate estimates.

7.6 Trend Analysis of Groundwater Withdrawal Data

Although every effort was made to obtain all existing water use records, there were still missing data in various water use categories for both Florida and Georgia. In addition, as discussed above we have relatively low confidence in the accuracy of the AG water use calculations because of unreliable crop acreage estimates and lack of actual irrigation application data. In order to evaluate the effects of missing data and the potentially inaccurate AG water use data, trend analyses were conducted on four different time series of Florida groundwater withdrawal data:

1. Total groundwater withdrawal (TGW): Sum of the available data in all categories, regardless of data series completeness.
2. Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data (no missing years). The categories with missing data points were not included.
3. Continuous groundwater withdrawal, no AG (CGWNA): All continuous water use data, except AG, were included. Any category with missing data points was not included.
4. Continuous AG groundwater withdrawal (CAG): Only continuous AG groundwater withdrawal. No counties with missing data were included.

In Georgia, because there were so many data series with large data gaps in the various water use categories, groundwater withdrawal data were only aggregated into three different time series for trend detection: Continuous groundwater withdrawal (CGW), Continuous groundwater withdrawal no AG (CGWNA), and Continuous AG. Annual water use data by county by category (AG, DSS, PS, CII, TGW, CGW, and CGWNA) are listed in **Appendix 16**. The time series and trend plots are summarized in **Appendix 17**. The results of the statistical analysis are summarized below.

7.6.1 Florida Total Groundwater Withdrawal (TGW)

The same trend analyses conducted for the other hydrologic datasets were conducted on this dataset. Trends in the data were determined based on the p-value and the slope (**Table 7.1).** A total of 4 counties in Florida were identified with Very Certain (3) or Warning (1) downward trends in their total groundwater withdrawal data series (**Table 7.2**).

Table 7.1 Trend analysis of the TGW time series in Florida

County	Slope (Million gallons/year)	Type	p-value	Trend and Direction
Alachua	64.664	M	0.46	NT ↑
Baker	-13.229	M	0.21	NT ↓
Bradford	-42.264	M	0.00	**VC** ↓
Columbia	-235.730	M	0.18	NT ↓
Dixie	6.696	M	0.34	NT ↑
Gilchrist	-50.554	M	0.68	NT ↓
Hamilton	-469.444	M	0.00	**VC** ↓
Lafayette	-1.766	M	0.90	NT ↓
Madison	-363.762	M	0.17	NT↓
Suwannee	-360.678	M	0.10	**W** ↓
Taylor	-118.097	M	0.00	**VC** ↓

County	Slope (Million gallons/year)	Type	p-value	Trend and Direction
Union	-52.142	M	0.26	NT ↓

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend
TGW=Total GW withdrawal

Table 7.2 Summary of trends, (all monotonic downward) of TGW data in Florida.

Label	Count	County
Very Certain	3	Bradford↓ Hamilton↓ Taylor↓
Probably Trending	0	
Warning	1	Suwannee↓

TGW=Total GW withdrawal

7.6.2 Florida Continuous Groundwater Withdrawal (CGW)

The same trend analyses as previously described were conducted on this CGW dataset. Trends were determined based on the p-value and the slope (**Table 7.3).** A total of 6 counties were identified with Very Certain (4) or Warning (2) (**Table 7.4**). Of these trends, there were Baker and Dixie Counties showed very certain upward trends in the continuous groundwater withdrawal data series. The remaining trends were downward.

Table 7.3 Trend analysis of the CGW time series in Florida

County	Slope (Million gallons/year)	Type	p-value	Trend and Direction
Alachua	0.26	M	1.00	NT ↑
Baker	10.96	M	0.01	**VC** ↑
Bradford	-13.58	M	0.09	**W** ↓
Columbia	-235.73	M	0.18	NT ↓
Dixie	21.58	M	0.00	**VC** ↑
Gilchrist	-50.55	M	0.68	NT ↓
Hamilton	-469.36	M	0.00	**VC** ↓
Lafayette	-5.64	M	0.69	NT ↓
Madison	-371.22	M	0.16	NT ↓
Suwannee	-360.68	M	0.10	**W** ↓
Taylor	-118.21	M	0.00	**VC** ↓
Union	-58.13	M	0.20	NT ↓

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend
CGW=Continuous GW withdrawal data

Table 7.4 Summary of trends, with direction, of CGW data in Florida

Label	Count	County
Very Certain	4	Dixie↑ Hamilton ↓ Taylor ↓ Baker↑
Probably Trend	0	
Warning	2	Bradford ↓ Suwannee ↓

CGW=Continuous GW withdrawal

7.6.3 Florida Continuous Groundwater Withdrawal without AG (CGWNA)

The same trend analyses as previously described were conducted on this dataset. Trends in the data were determined based on the p-value and the slope (**Table 7.5).** A total of 7 counties were identified with Very Certain (6) or Probably Trending (1) trends in their continuous groundwater without AG data series (1) (**Table 7.6**). All significant trends were upwards except Taylor County which was downward.

Table 7.5 Trend analysis of the CGWNA time series in Florida

County	Slope (Million gallons/year)	Type	p-value	Trend and Direction
Alachua	161.63	M	0.00	**VC** ↑
Baker	35.46	M	0.04	**PT** ↑
Bradford	11.66	M	0.28	NT ↑
Columbia	47.81	M	0.00	**VC** ↑
Dixie	21.58	M	0.00	**VC** ↑
Gilchrist	17.48	M	0.00	**VC** ↑
Hamilton	-356.70	M	0.34	NT ↓
Lafayette	42.64	M	0.00	**VC** ↑
Madison	5.03	M	0.64	NT ↑
Suwannee	31.23	M	0.00	**VC** ↑
Taylor	-118.21	M	0.00	**VC** ↓
Union	5.91	M	0.00	**VC** ↑

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend
CGWNA= Continuous GW withdrawal data, No agriculture

Table 7.6 Summary of trends, with direction, of CGWNA data in Florida.

Label	Count	County
Very Certain	6	Alachua↑ Columbia↑ Gilchrist↑ Lafayette↑ Suwannee↑ Union↑ Dixie↑ Taylor↓
Probably Trend	1	Baker↑
Warning	0	

CGWNA= Continuous GW withdrawal, No agriculture

7.6.4 Florida Continuous AG water use data only (CAG)

The same trend analyses as previously described were conducted on this dataset. Trends in the data were determined based on the p-value and the slope (**Table 7.7).** A total of 6 counties were identified with very certain (2), probably trending (3), or warning (1) trends in their continuous agricultural water use data series (**Table 7.8**). All significant trends were downwards. It should be noted that irrigation efficiency was assumed constant throughout the study period when estimating agricultural water use, therefore the downward trends are caused by downward trends in crop acreage reported, which may be of questionable accuracy.

Table 7.7 Trend analysis of the CAG time series in Florida

County	Slope (Million gallons/year)	Type	p-value	Trend and Direction
Alachua	-360.9325	M	0.08	**PT** ↓
Baker	-32.9843	M	0.05	**PT** ↓
Bradford	-45.6669	M	0.02	**VC** ↓
Columbia	-253.1797	M	0.16	NT ↓
Dixie	data not suitable for the analysis			
Gilchrist	-68.0303	M	0.59	NT ↓
Hamilton	-207.7214	M	0.04	**PT** ↓
Lafayette	-48.0179	M	0.01	**VC** ↓
Madison	-376.2487	M	0.16	NT ↓
Suwannee	-399.7113	M	0.09	**W** ↓
Taylor	data not suitable for the analysis			
Union	-70.4911	M	0.17	NT ↓

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend
CAG=Continuous agricultural data only

Table 7.8 Summary trends, with direction, of CAG data in Florida.

Label	Count	County
Very Certain	2	Bradford↓ Lafayette↓
Probably Trending	3	Alachua↓ Baker↓ Hamilton↓
Warning	1	Suwannee↓

CAG=Continuous agricultural

7.6.5 Florida Comparison of Withdrawal Trend Categories

The trends of all categories of withdrawal are compared in **Table 7.9.** It is clear that downward trends in estimated agricultural water use are driving downward trends in all data series that include it. When agriculture water use is not included (CGWNA), the statistical trends generally reflect the apparent direction of the largest water use category (PS, DSS, CII) since 1980 (“Major Non-Ag Component” in Table 7.9) (see **Appendix 16**). All trends are upward when agriculture is not included except Taylor county where there is very little irrigated agriculture (Taylor County Extension Agent, personal communication) and improved efficiency of the large paper plant has required less withdrawal (Rich Marella, personal communication).

Our uncertainty regarding the accuracy of the domestic self-supply and agricultural groundwater withdrawal records, and the conflicting results from the statistical trend analyses of these records when agriculture is separated out from the remaining water uses, suggest that the Florida groundwater withdrawal data are not of sufficient quality to draw reliable conclusions about trends in these data or relationships with other hydrologic time series.

Table 7.9 Comparison of trends in Florida withdrawal datasets (see Appendix 16). Significant upward trends are bolded. Major component considers historic average. Blank cells = No Trend detected

County	Trend and Dir TGW	Trend and Dir CGW	Trend and Dir CGWNA	Major Component Non-Ag	Major Component Overall	Trend and Dir CAG
Alachua			**VC ↑**	PS	PS*	PT ↓
Baker		**VC ↑**	**PT ↑**	DSS	DSS*	PT ↓
Bradford	VC ↓	W ↓		CII	CII	VC ↓
Columbia			**VC ↑**	PS	AG*	
Dixie		**VC ↑**	**VC ↑**	DSS	AG	
Gilchrist			**VC ↑**	DSS	AG*	
Hamilton	VC ↓	VC ↓		CII	CII	PT ↓
Lafayette			**VC ↑**	DSS	DSS*	VC ↓
Madison					AG*	
Suwannee	W ↓	W ↓	**VC ↑**	DSS	AG*	W ↓
Taylor	VC ↓	VC ↓	VC ↓	CII	CII	NA
Union			**VC ↑**	DSS	DSS*	

VC = Very Certain, PT = Probably Trend, W = Warning, NA=Not available

TGW=Total GW withdrawal, CGW=Continuous GW withdrawal, CGWNA= Continuous GW withdrawal, No agriculture, CAG=Continuous agricultural only, PS=Public Supply, DSS=Domestic Self-Supply, CII=Commercial/Industrial

* In 1980, overall major component was agriculture.

7.6.6 Georgia Continuous Groundwater Withdrawal (CGW)

The same trend analyses as previously described were conducted on this dataset. Trends in the data were determined based on the p-value and the slope (**Table 7.10).** A total of 3 counties were identified with Very Certain trends in their continuous groundwater withdrawal time series, and all these trends were downward (**Table 7.11**).

Table 7.10 Trend analysis of the TGW time series in Georgia

County	Slope (Million gallons per year)	Type	p-value	Trend and Direction
Atkinson	1.95	M	0.89	NT ↑
BenHill	16.41	M	0.66	NT ↑
Berrien	-3.69	M	0.98	NT ↓
Brooks	-89.23	M	0.44	NT ↓

County	Slope (Million gallons per year)	Type	p-value	Trend and Direction
Charlton	-3.78	M	0.50	NT ↓
Clinch	-24.21	M	0.00	**VC** ↓
Colquitt	54.82	M	0.68	NT ↑
Cook	-74.23	M	0.48	NT ↓
Crisp	37.06	M	0.58	NT ↑
Echols	-38.84	M	0.14	NT ↓
Irwin	141.90	M	0.31	NT ↑
Lanier	-0.11	M	1.00	NT ↓
Lowndes	-172.94	M	0.00	**VC** ↓
Tift	112.3	M	0.54	NT ↑
Turner	129.81	M	0.41	NT ↑
Ware	-47.46	M	0.00	**VC** ↓
Wilcox	-9.95	M	0.60	NT ↓
Worth	144.53	M	0.25	NT ↑

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend, TGW=Total GW withdrawal

Table 7.11 Summary of trends (all downward) of TGW in Georgia.

Label	Count	County
Very Certain	3	Clinch↓ Lowndes↓ Ware↓
Probably Trend	0	
Warning	0	

TGW=Total GW withdrawal

7.6.7 Georgia Continuous Groundwater Withdrawal without Agriculture Data (CGWNA)

The same trend analyses as previously described were conducted on this dataset. Trends in the data were determined based on the p-value and the slope (**Table 7.12).** A total of 5 counties were identified with Very Certain (3) or Warning (2) downward trends in their continuous groundwater withdrawal without agriculture time series (**Table 7.13**). One county (Wilcox) was identified to have a Very Certain upward trend.

Table 7.12 Trend analysis of the CGWNA time series in Georgia

County	Slope (Million gallons per year)	Type	p-value	Trend and Direction
Atkinson	0.07	M	0.95	NT ↑
BenHill	11.27	M	0.22	NT ↑
Berrien	-10.44	M	0.01	**VC** ↓
Brooks	-14.71	M	0.06	**W** ↓
Charlton	-1.54	M	0.23	NT ↓
Clinch	0.06	M	0.96	NT ↑
Colquitt	-18.70	M	0.06	**W** ↓

County	Slope (Million gallons per year)	Type	p-value	Trend and Direction
Cook	-29.90	M	0.00	**VC** ↓
Crisp	-3.79	M	0.77	NT ↓
Echols	-2.43	M	0.18	NT ↓
Irwin	-7.27	M	0.17	NT ↓
Lanier	-0.54	M	0.82	NT ↓
Lowndes	55.88	M	0.24	NT ↑
Tift	30.35	M	0.38	NT ↑
Turner	-7.26	M	0.01	**VC** ↓
Ware	-1.22	M	0.87	NT ↓
Wilcox	0.00	M	0.02	**VC** ↑
Worth	-3.34	M	0.69	NT ↓

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend, CGWNA= Continuous GW withdrawal, No agriculture

Table 7.13 Summary of trends, with direction, of CGWNA data in Georgia.

Label	Count	County
Very Certain	4	Berrien↓ Cook↓ Turner↓ Wilcox↑
Probably Trending	0	
Warning	2	Brooks↓ Colquitt↓

CGWNA= Continuous GW withdrawal, No agriculture

7.6.8 Georgia Agricultural Groundwater Withdrawal Data (CAG)

The same trend analyses as previously described were conducted on this dataset. Trends in the data were determined based on the p-value and the slope (**Table 7.14).** A total of 5 counties were identified with very certain downward trends in their agricultural groundwater withdrawal time series (**Table 7.15**).

Table 7.14 Trend analysis of the CAG time series in Georgia

County	Slope (Million gallons/year)	Type	p-value	Trend and Direction
Atkinson	9.20706	M	0.87	NT ↑
BenHill	35.2896	M	0.62	NT ↑
Berrien	5.89665	M	0.98	NT ↑
Brooks	-76.16	M	0.51	NT ↓
Charlton	-10.914	M	0.01	**VC** ↓
Clinch	-31.115	M	0.01	**VC** ↓
Colquitt	154.288	M	0.44	NT ↑
Cook	-51.675	M	0.64	NT ↓
Echols	-55.367	M	0.00	**VC** ↓
Crisp	113.651	M	0.58	NT ↑

County	Slope (Million gallons/year)	Type	p-value	Trend and Direction
Irwin	180.428	M	0.28	NT ↑
Lanier	0.31929	M	0.99	NT ↑
Lowndes	-227.6	M	0.00	**VC ↓**
Tift	113.822	M	0.44	NT ↑
Turner	146.229	M	0.41	NT ↑
Ware	-79.895	M	0.00	**VC ↓**
Wilcox	-47.815	M	0.37	NT ↓
Worth	374.864	M	0.21	NT ↑

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend
CAG=Continuous agricultural data only

Table 7.15 Summary of trends, with direction, of CAG data in Georgia

Label	Count	County
Very Certain	5	Charlton↓ Clinch↓ Lowndes↓ Ware↓ Echols↓
Probably Trend	0	
Warning	0	

CAG=Continuous agricultural only

7.6.9 Georgia Comparison of Withdrawal Trend Categories

The trends of all categories of withdrawal for Georgia are compared in **Table 7.16.** In general the trends detected in the Georgia groundwater withdrawal time series are downward for all categories (only exception Wilcox County CGWNA time series). However the non-agricultural Georgia water use data (See **Appendix 16**) is less reliable than the Florida water non-agricultural use data due to a lack of detailed permittee reporting, and the Georgia agricultural water use data suffers the same reliability issues as the Florida agricultural water use data. Therefore we believe that the Georgia groundwater withdrawal data are also of insufficient quality to draw reliable conclusions about trends in these data or relationships with other hydrologic time series.

Table 7.16 Comparison of trends in Georgia withdrawal datasets. Upward trends bolded. Blank cells = No Trend.

County	Trend and Dir TGW	Trend and Dir CGWNA	Major Non-Ag Component	Trend and Dir CAG
Atkinson			PS	
BenHill			PS	
Berrien		VC ↓	DSS	
Brooks		W ↓	PS	
Charlton			PS	VC ↓
Clinch	VC ↓		PS	VC ↓
Colquitt		W ↓	PS	

Cook		VC ↓	PS	
Crisp			DSS	
Echols			DSS	VC ↓
Irwin			PS	
Lanier			PS	
Lowndes	VC ↓		CII	VC ↓
Tift			PS	
Turner		VC ↓	PS	
Ware	VC ↓		DSS	VC ↓
Wilcox		**VC ↑**	PS	
Worth			PS	

VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend

TGW=Total GW withdrawal; CGW=Continuous GW withdrawal data; CGWNA= Continuous GW withdrawal data, No agriculture; CAG=Continuous agricultural data only

8. Evaluation of Statistical Relationships between Hydrologic Data

Statistical relationships between hydrologic time series (groundwater level from SWRMD and USGS, rainfall, and streamflow) were evaluated. As presented previously, seven groundwater wells from the SRWMD dataset and four groundwater wells from the USGS Georgia dataset had probable or very certain trends (i.e., confidence level >90%). To identify possible factors that may affect or be affected by groundwater level trends, we explored the correlations between trending (confidence level >90%) groundwater data and the nearest two rainfall and streamflow stations. As discussed in the previous chapters, neither the spring discharge nor the groundwater withdrawal dataset was suitable for this analysis. Per contract amendment, the SJRWMD groundwater level dataset was included in the trend and cluster analysis but was not part of this correlation analysis.

The correlations between two time series were evaluated using the Spearman's rank, Kendall's rank, and linear regression methods. An MS Excel sheet from the Handbook of Biological Statistics (McDonald, 2009) was used to perform the Spearman rank correlation analysis. Kendall tau Rank Correlation (v1.0.10), public domain software, was used to perform the Kendall Tau correlation test (http://www.wessa.net). The correlations between the time series were evaluated based on the correlation coefficients (i.e., R^2, Spearman's ρ, and Kendall's τ), as well as the p-values. We used following criterions to label the correlations:

- **Strongly Correlated**: all the correlation coefficients including R^2, ρ, and τ are greater than or equal to 0.5, and all the p-values are smaller than or equal to 0.05. The sign of the slope of linear regression is used to determine positive (+) and negative (-) correlation.
- **Probably Correlated**: one of the correlation coefficients is greater than or equal to 0.5, and the corresponding p-value smaller is than or equal to 0.05.
- **Not Detected**: all the correlation coefficients are smaller than 0.5.

8.1 Correlation Analyses for Florida Hydrological Data

8.1.1 Florida Groundwater vs. Rainfall

Correlation analyses of the 3 SRWMD groundwater levels with probably or very certain trending and the nearest two rainfall station time series were conducted (**Figure 8.1**). Data for these two time series were plotted over the same period (**Appendix 18.1**). The statistical evaluations are summarized in **Table 8.1**. Among the 6 groundwater and rainfall pairs, the results showed that 2 of them were probably positively correlated. This result suggests that the variation of annual average groundwater levels in these two stations may be related to variations in annual precipitation in the area. The fact that the groundwater levels showed statistically significant downward trends but the correlated rainfall measurements did not is likely due to the higher inter-annual variability of the rainfall data series as compared to the groundwater data series. No correlation was detected (all R^2, ρ, and τ values are smaller than 0.5) between groundwater level stations -72215001 and the closest two rainfall stations.

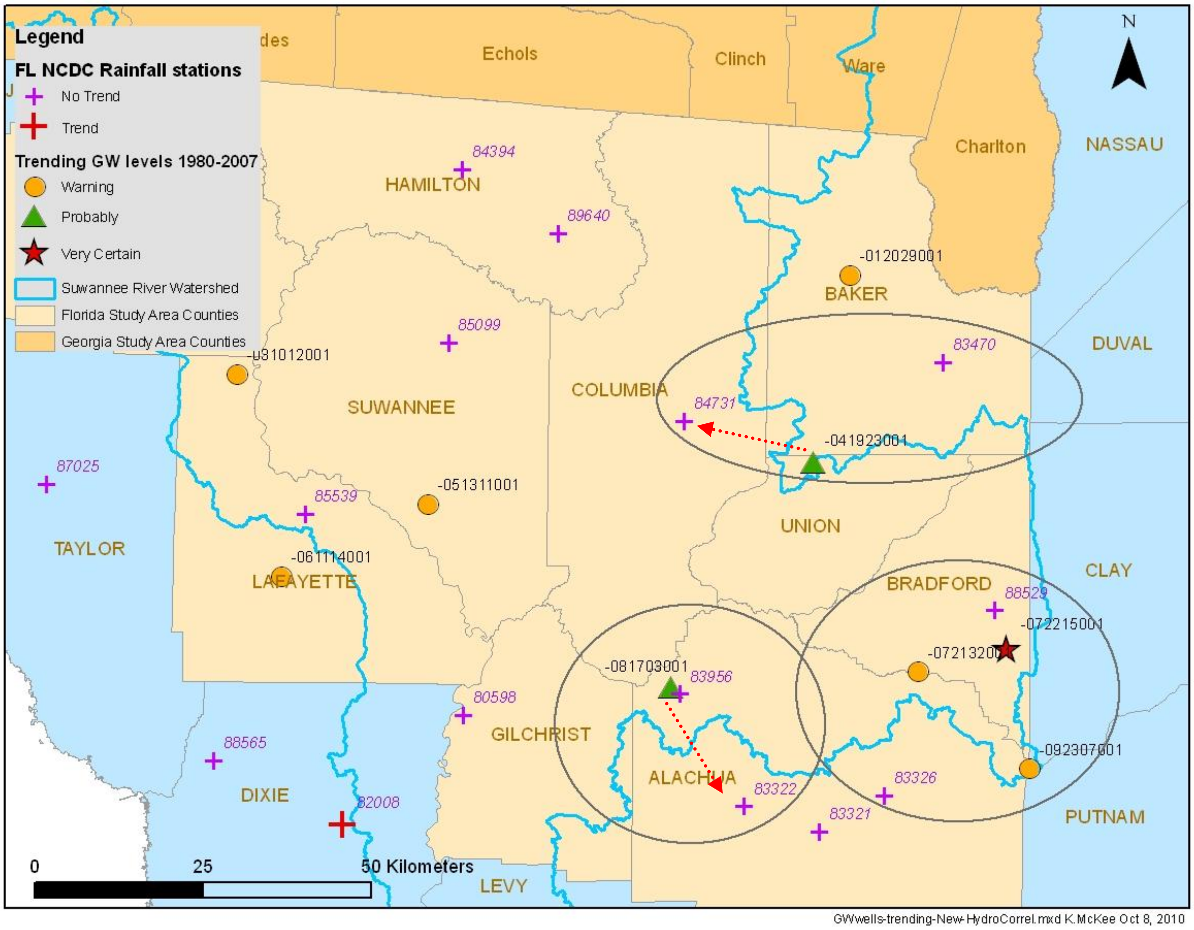


Figure 8.1. Correlations of trending (with confidence level >90%) SRWMD groundwater wells with NCDC rain stations in Florida. Oval shapes contain paired trending well and rain stations that were compared in the correlation analysis. A dotted-line arrow represents a probable correlation.

Table 8.1 Correlation analysis of Florida groundwater (FGW) vs. Florida rain (Frain)

FGW ID	Frain ID	Linear regression		Spearman's rank		Kendall's rank		Result
		R^2	Slope sign	ρ	p-value	τ	p-value	
-72215001	88529	0.028	+	0.083	0.95	0.056	0.92	Not Detected
	83956	0.1128	+	0.255	0.19	0.143	0.30	Not Detected
-81703001	83956	0.13	+	0.350	0.07	0.217	0.11	Not Detected
	83332	0.4092	+	0.507	0.09	0.485	0.03	Probably Correlated
-41923001	83956	0.081	+	0.180	0.36	0.079	0.57	Not Detected
	84731	0.471	+	0.703	0.00	0.550	0.00	Probably Correlated

8.1.2 Florida Groundwater vs. Stream

The correlations between the 3 trending SRWMD groundwater levels and USGS streamflow data in Florida were evaluated (**Figure 8.2**). Data for each pair of time series were plotted against each other over the same period (**Appendix 18.2**). The statistical evaluations are summarized in **Table 8.2.** All 6 groundwater and streamflow pairs were found to probably positively correlated. This result implies that, on annual basis variations in groundwater levels and streamflow have similar causes, and that base flow contribution may play an important role in the streamflow at these river stations. The fact that the groundwater levels showed statistically significant downward trends but the correlated streamflow measurements did not is likely due to the higher inter-annual variability of the streamflow data series as compared to the groundwater data series (due to the higher variability of contributions of surface runoff to streamflow).

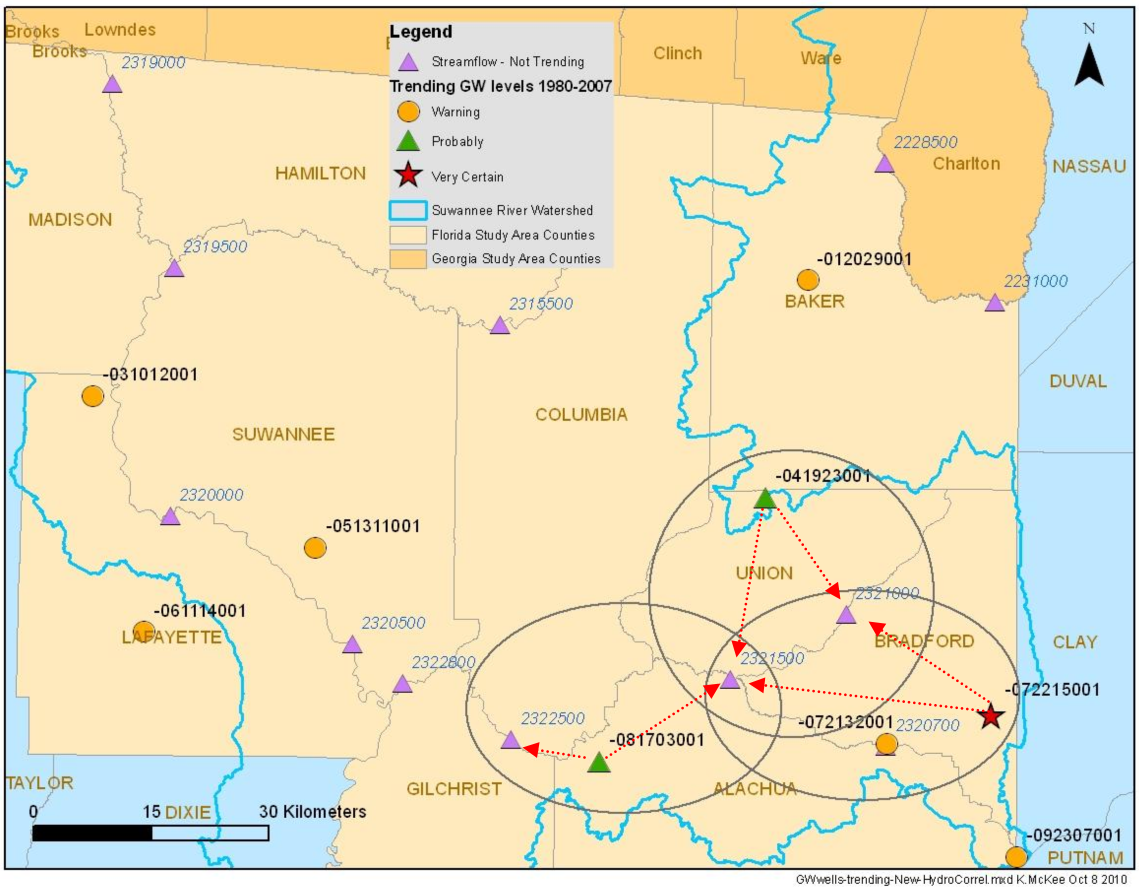


Figure 8.2. Correlations of trending (with confidence level >90%) SRWMD groundwater wells with USGS streamflow stations in Florida. Oval shapes contain paired trending well and streamflow stations that were compared in the correlation analysis. A dotted-line arrow represents a probable correlation.

Table 8.2 Correlation analysis of groundwater levels (FGW) vs. nearest two streamflow (Fstream) stations in Florida.

FGW ID	Fstream ID	Linear regression		Spearman's rank		Kendall's rank		Result
		R^2	Slope sign	ρ	p-value	τ	p-value	
-72215001	02321000	0.2313	+	0.754	0.02	0.295	0.14	Probably Correlated
	02321500	0.3473	+	0.524	0.00	0.381	0.00	Probably Correlated

FGW ID	Fstream ID	Linear regression		Spearman's rank		Kendall's rank		Result
		R^2	Slope sign	ρ	p-value	τ	p-value	
-81703001	2322500	0.3846	+	0.825	0.00	0.683	0.00	Probably Correlated
	2321500	0.5004	+	0.648	0.00	0.487	0.00	Probably Correlated
-41923001	02321000	0.4055	+	0.868	0.00	0.390	0.05	Probably Correlated
	02321500	0.4531	+	0.645	0.00	0.455	0.00	Probably Correlated

8.2 Correlation Analyses for Georgia Hydrological Data

8.2.1 Georgia Groundwater vs. Rainfall

Correlation analyses of the 3 USGS groundwater levels with very certain trending and the nearest two rainfall stations' time series were conducted (**Figure 8.3**). Data for these two time series were plotted against each other over the same period (**Appendix 18.3**). The statistical evaluations are summarized in **Table 8.3**. No correlation was detected (all R^2, ρ, and τ values are smaller than 0.5) between any of the groundwater level and the rainfall data.

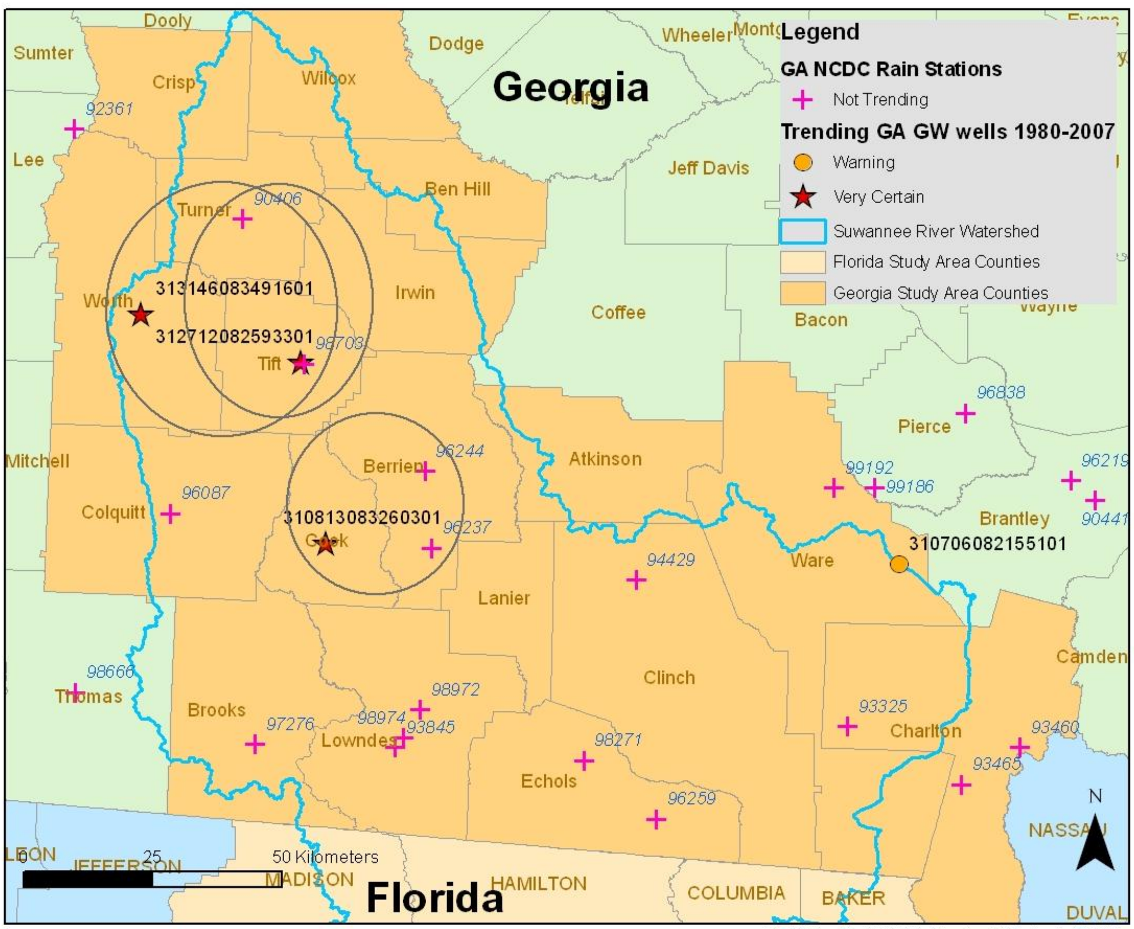


Figure 8.3. Map of trending groundwater-level/rainfall station pairs. No correlations were detected. Oval shapes contain paired trending well and streamflow stations that were compared in the correlation analysis.

Table 8.3 Correlation analysis of Georgia groundwater (BGW) vs. rainfall (Grain)

GGW ID	Grain ID	Linear regression		Spearman's rank		Kendall's rank		Result
		R^2	Slope sign	ρ	p-value	τ	p-value	
310813083260301	96244	0.034	+	0.239	0.30	0.171	0.29	Not Detected
	96237	0.073	-	-0.167	0.69	-0.071	0.90	Not Detected
312712082593301	90406	0.001	+	0.084	0.67	0.064	0.65	Not Detected
	98703	0.068	+	0.349	0.07	0.238	0.08	Not Detected
313146083491601	90406	0.00	-	0.044	0.83	0.021	0.89	Not Detected
	98703	0.042	+	0.294	0.13	0.217	0.11	Not Detected

8.2.2 Georgia Groundwater vs. Stream

The correlations between the 3 trending USGS groundwater levels and the closest 2 USGS streamflow stations' data in Georgia were evaluated (**Figure 8.4**). Data for the pairs of time series were plotted against each other over the same period (**Appendix 18.4**). The statistical evaluations are summarized in **Table 8.4.** Among the 6 groundwater and streamflow pairs, the results showed that 3 of them were probably positively correlated. This again implies that, on an annual basis variations in groundwater levels and streamflow have similar causes, and that base flow contribution may play an important role in the streamflow at these river stations. As with the Florida data, the fact that the groundwater levels showed statistically significant downward trends but the correlated streamflow measurements did not is likely due to the higher inter-annual variability of the streamflow data series as compared to the groundwater data series.

Figure 8.4. Correlations of trending (with confidence level >90%) USGS groundwater wells with USGS streamflow stations in Georgia. Oval shapes contain paired trending well and streamflow stations that were compared in the correlation analysis. A dotted-line arrow represents a probable correlation.

Table 8.4 Correlation analysis of Georgia groundwater (GGW) vs. streamflow (GStream).

GGW ID	GStream ID	Linear regression		Spearman's rank		Kendall's rank		Result
		R^2	Slope sign	ρ	p-value	τ	p-value	
310813083260301	02318000	0.361	+	0.371	0.47	0.333	0.45	Not Detected
	02318700	0.132	+	0.324	0.09	0.222	0.10	Not Detected
312712082593301	02318000	0.867	+	0.886	0.02	0.733	0.06	Probably Correlated
	02316000	0.815	+	0.829	0.04	0.733	0.06	Probably Correlated
313146083491601	02318000	0.670	+	0.829	0.04	0.733	0.06	Probably Correlated
	02350512	0.083	+	0.314	0.18	0.258	0.39	Not Detected

9. Cluster Analysis of Groundwater Level

A statistical cluster analysis was conducted using all three datasets of groundwater level time series: SRWMD wells in Florida, USGS wells in Georgia, and SJRWMD supplemental data consisting of SJRWMD wells and USGS wells in Northeast Florida and Southeast Georgia for the period 1980-2007. A total of 100 wells with coincident continuous data from 1986-2005 were analyzed. The groundwater level observations were first normalized for each well by subtracting the mean and dividing by the standard deviation of the groundwater level data for period between 1986 and 2005. Following is the summary of the results. **A supplemental report was also submitted to the district, which reported the cluster analysis results for the same groundwater level data normalized using the mean and standard deviation of the entire period of record for the historic groundwater level data.**

9.1 Dendrogram

An agglomerative heirarchical cluster analysis (AHCA) was performed on the normalized groundwater level time series. The dendrogram (i.e., cluster tree) of the cluster structure is shown in **Figure 9.1**. The roots of the tree are different clusters and the leaves represent individual observations of groundwater levels. The cluster height is the value of the criterion associated with the agglomerative algorithm. The data can be separated into different clusters depending on chosen height. In this study, we clustered the data into 2, 3, and 4 clusters (**Appendix 19**).

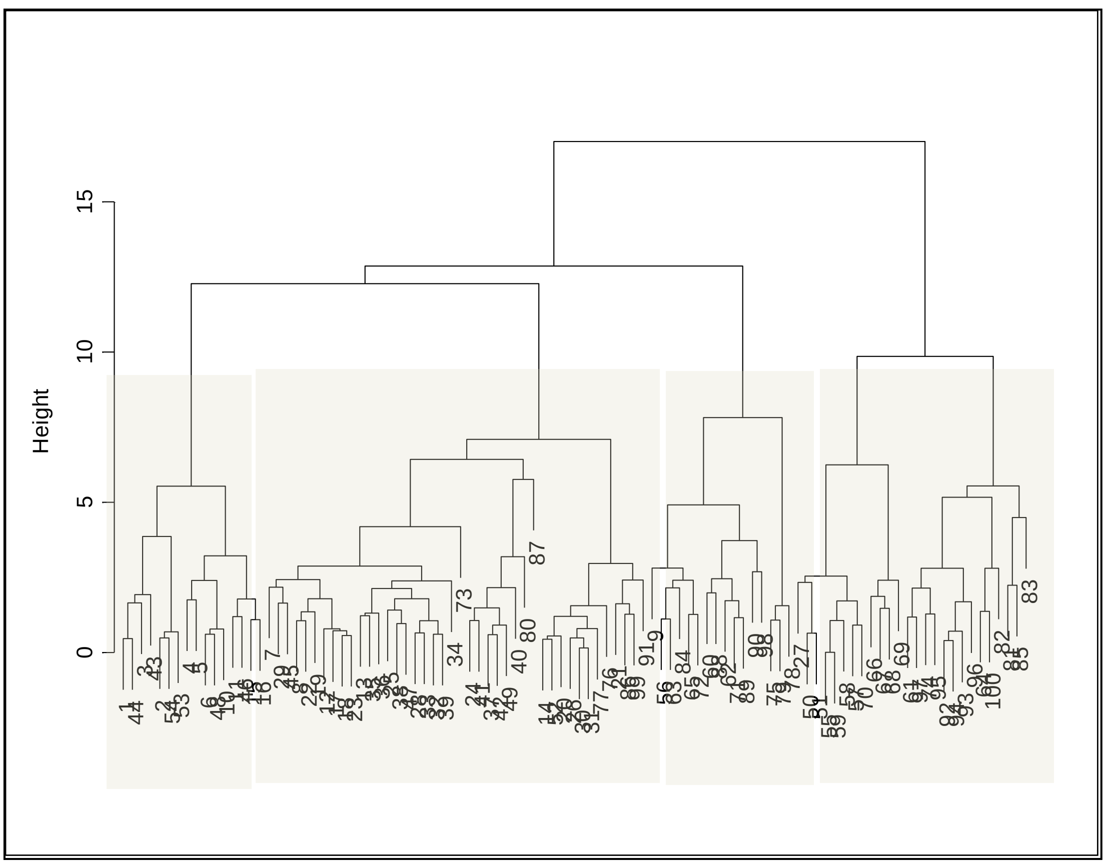
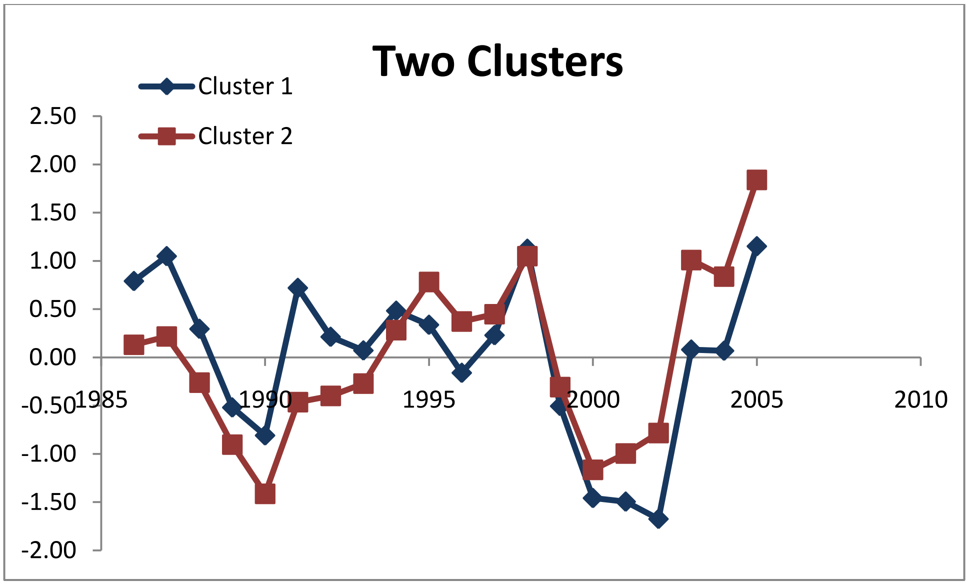


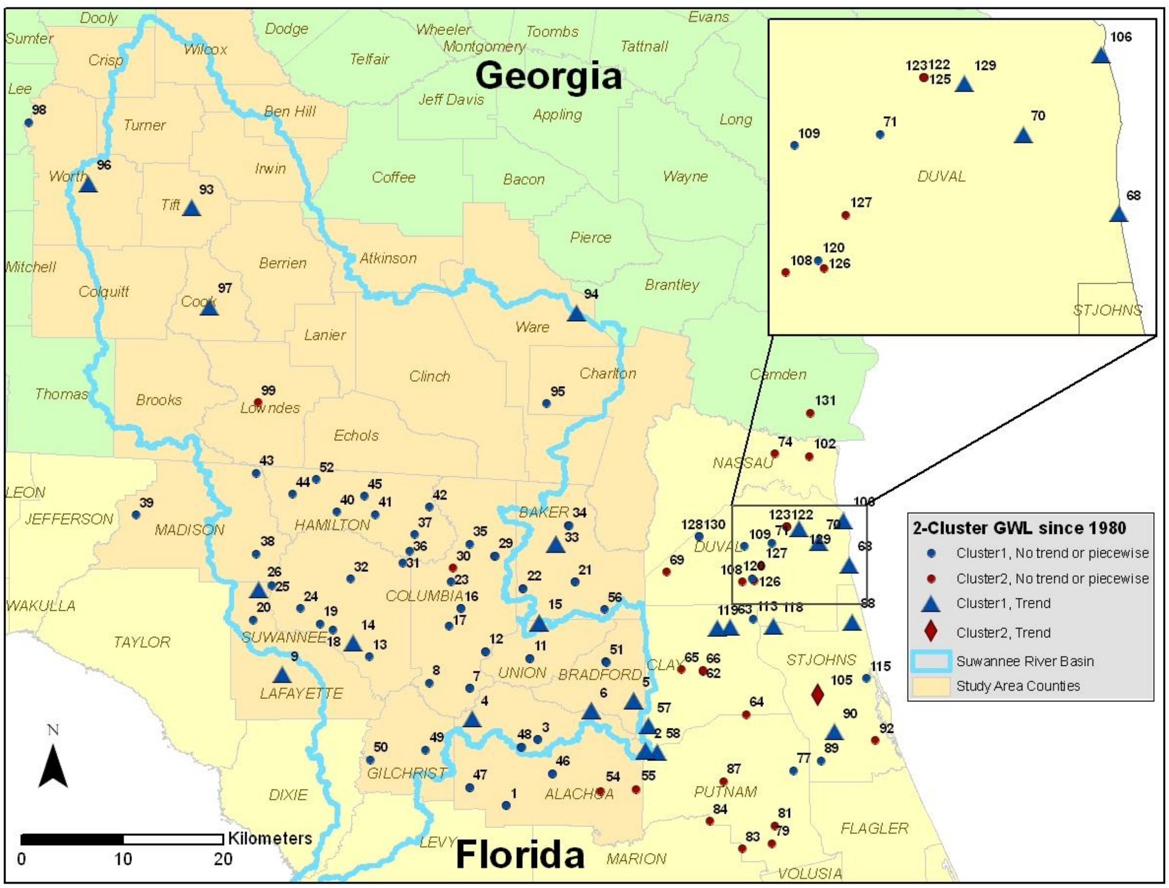
Figure 9.1. Dendrogram formed by agglomerative heirarchical cluster analysis (AHCA).

9.2 Two Clusters

The data separate into 2 clusters when a large height (>14) was used (**Figure 9.2**). The normalized groundwater level data were averaged for each cluster and plotted together in **Figure 9.2A.** The average time series of clusters 1 and 2 do not show much difference in their patterns. **Figure 9.2B** shows the spatial location of the wells in each cluster. In the two-cluster analysis results, most of the wells fall into cluster 1 and are distributed throughout the study area. Fewer wells (26) fall into cluster 2 and most of them are located the eastern part of the study area. Almost all the wells in cluster 2 have either a positive slope (e.g., Well 295357081294301 in St. Johns County, Map ID 105, slope 0.10 ft/year, warning trend) or relatively flat slope with a groundwater level trend smaller than 0.15 ft/year, except well -021624001 in Columbia County Florida (Map ID 30, slope -0.22 ft/year, no significant trend).



(A)

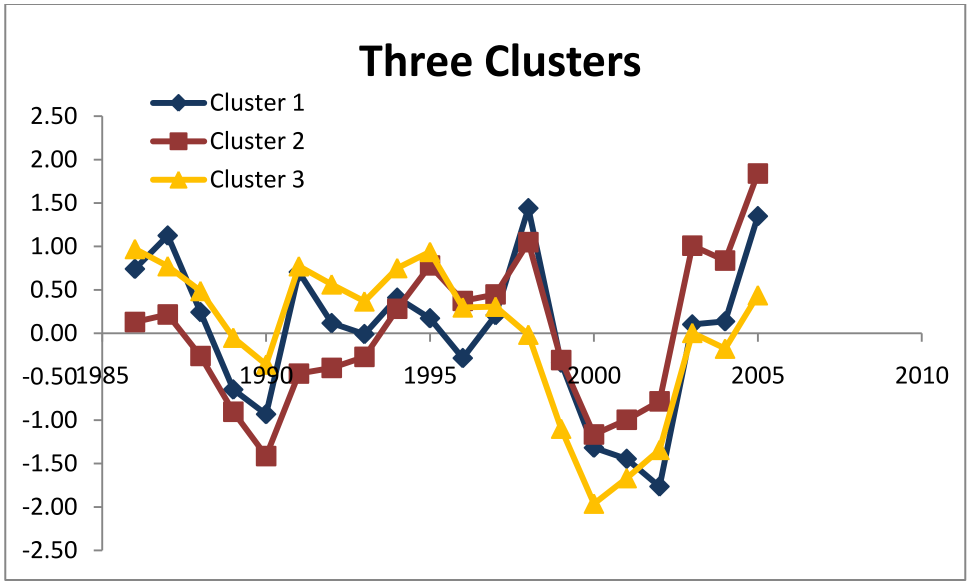


(B)

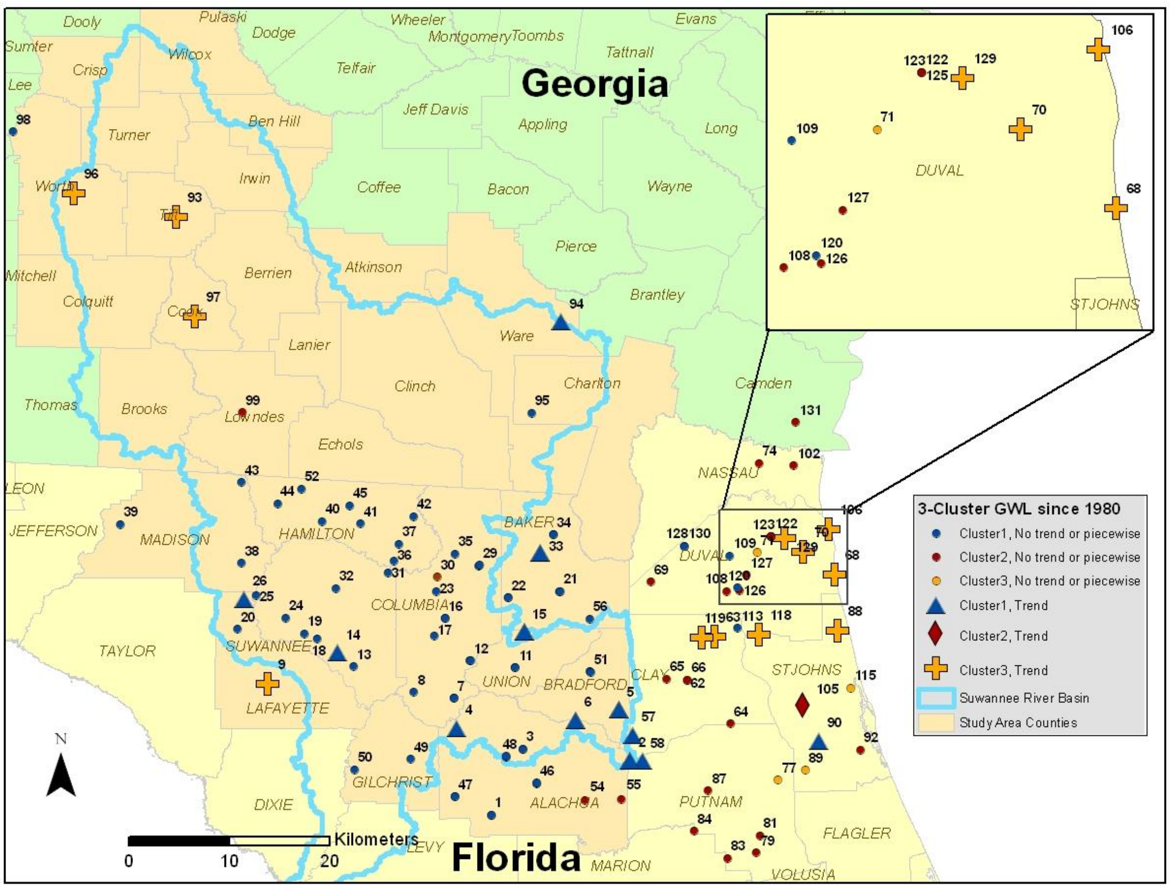
Figure 9.2. 2-Cluster Plot and Map. (A) Averages of normalized groundwater levels for clusters 1 (blue) and 2 (red). (B) Spatial distribution of the groundwater wells for clusters 1 (blue) and 2 (red).

9.3 Three Clusters

The data separate into 3 clusters when a smaller height (between 13 and 14) was used (**Figure 9.3**). The normalized groundwater level data were averaged for each cluster and plotted together in **Figure 9.3A. Figure 9.3B** shows spatial location of the wells in each cluster. The cluster-2 wells in the three cluster analysis are exactly the same the cluster-2 wells in the two cluster analysis (i.e. had positive or very small negative slopes).The cluster-1 wells in the two cluster analysis split into two clusters (i.e., cluster 1 and 3). Fewer wells (16), primarily located in Georgia and Duval County Florida were separated into cluster 3. These include the three very certain downward trending Georgia wells (Map ID 93, well ID 312712082593301, slope -0.86 ft/y; map ID 96, well ID 313146083491601, slope -0.66 ft/y; and map ID 97, well ID 310813083260301, slope -0.32 ft/y), one Florida well in Lafayette County (map ID 9, well ID -061114001, slope -0.15 ft/y, warning trend) and eleven Northeast Florida wells in Duval (5), St Johns (4), Clay (2), and Putman (1) Counties (with slopes ranging from –0.06 to –0.56 ft/year). Ten of the 16 well in cluster 3 have relatively steep slope with a downward groundwater level slope greater than 0.24 ft/year.



(A)

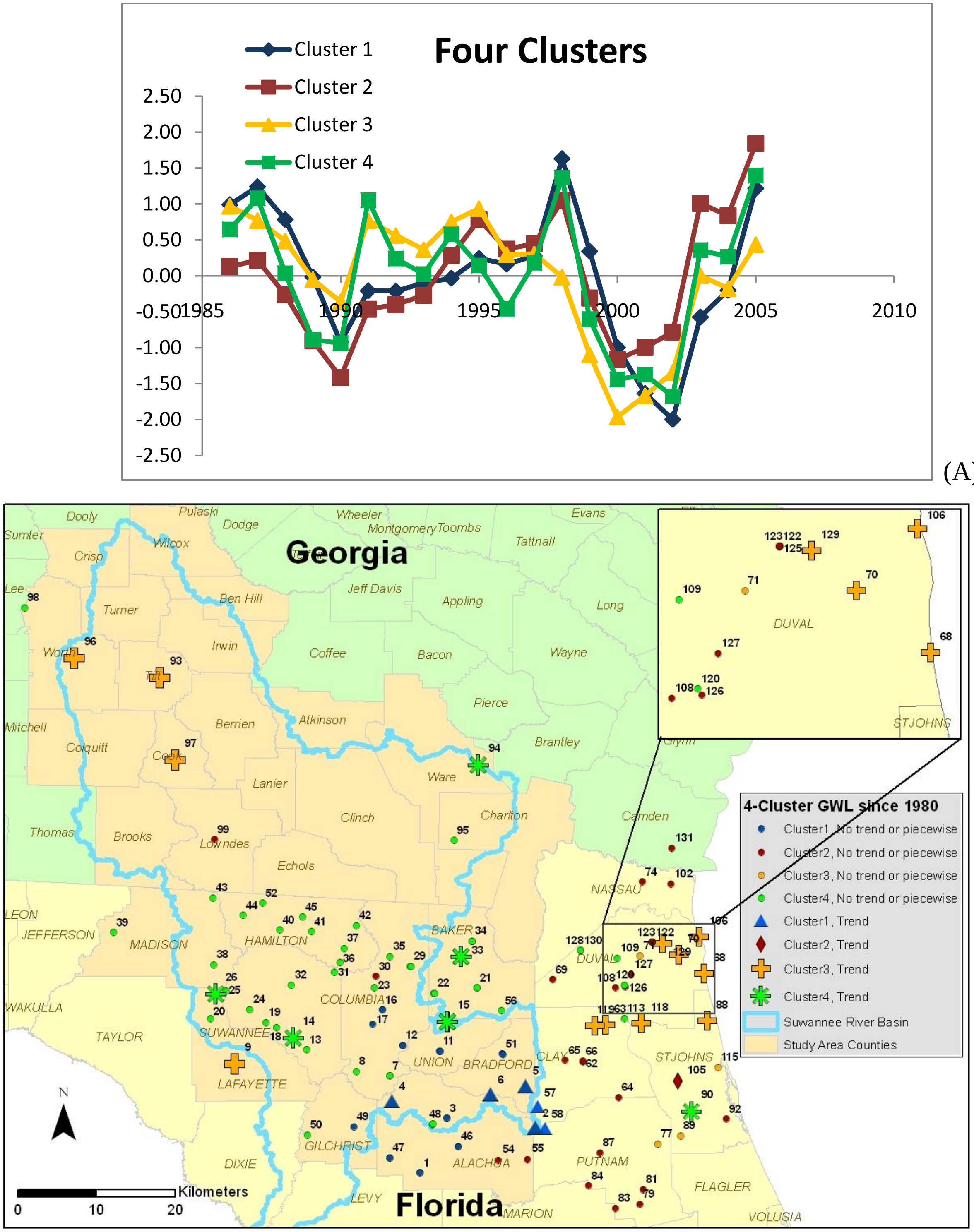


(B)

Figure 9.3. 3-Cluster Plot and Map. (A) Averages of normalized groundwater levels for clusters 1 (blue), 2 (red), and 3(yellow). (B) Spatial distribution of the groundwater wells for clusters 1 (blue), 2 (red), and 3 (yellow).

9.4 Four Clusters

The data separate into 4 clusters when a smaller height (between 11 and 13) was used (**Figure 9.4**). The normalized groundwater level data were averaged for each cluster and plotted together in **Figure 9.4A. Figure 9.4B** shows the spatial location of the wells in each cluster. The cluster 2 and 3 wells in the four cluster analysis are exactly the same as those in the three cluster analysis. However, wells in the cluster 1 for the three cluster analysis split into two clusters (i.e., cluster 1 and 4) with most of the cluster 1 wells being in the vicinity of the Santa Fe River Basin (i.e. Union, Bradford, Clay and Alachua Counties).



(A)

(B)

Figure 9.4. 4-Cluster Results. (A) Averages of normalized groundwater levels for clusters 1 (blue), 2 (red), 3 (yellow) and 4 (green). (B) Spatial distribution of the groundwater wells for clusters 1 (blue), 2 (red), 3 (yellow), and 4 (green).

10. Conclusions

In this study, historic hydrological data from January 1980 to December 2007 were collected. A total of 132 groundwater level, 44 rainfall, 20 spring discharge, 22 streamflow, and 30 groundwater-withdrawal (by county) time series were compiled, although not all had consistent records for the entire time period. Statistical analyses were conducted on those time series that had more than 10 years of data during the study period.

Results from the statistic trend analyses showed that 12 groundwater wells (1 in the SRWMD, 3 in Georgia and 8 in the SJRWMD) had a very certain downward trend (with Mann-Kendall test confidence level >95%). The trend analyses suggested that the groundwater in the study area has been decreasing in some parts of the study area since 1980. It is therefore very important to identify the possible causes of the decline. No significant trends were detected (confidence level >95%) for any of the 22 streamflow stations in the study area. The trend analyses were not conducted for the 20 spring flow stations because less than 10 years of data were available.

Only 1 out of 44 rainfall stations in the study area had a very certain downward trend (Dixie County in Florida, confidence level >95%). Results from the correlation analyses, however, showed that there were probable correlations between two groundwater level time series that had trends (confidence level > 90%) in the SRWMD and one of the nearest rainfall time series. This suggests that annual variations in groundwater levels at those groundwater stations are related to annual variations in precipitation in the area.

Probable correlations were also detected between individual groundwater wells (3 in Florida and 2 in Georgia) and one or two of the nearest streamflow stations. This implies that, annual variations in groundwater levels and streamflow may have similar causes, and that base flow contribution may play an important role in the streamflow at these river stations. The fact that the groundwater levels showed statistically significant downward trends but the correlated rainfall and streamflow measurements did not, is likely due to the higher inter-annual variability of the rainfall and streamflow as compared to the groundwater.

Trend analyses were completed for various combinations of water use categories by county. In Florida, it is clear that downward trends in the agricultural water use estimates are driving downward trends in the data series that include it. When agriculture water use is not included, the statistical trends generally reflect the apparent direction of the largest water use category (PS, DSS, CII). In these cases, all are upward except Taylor County where there is very little irrigated agriculture and improved efficiency of the large paper plant has required less withdrawal. The significant groundwater withdrawal trends detected in the Georgia groundwater withdrawal time series were all downward with the exception of Wilcox County Continuous Groundwater without Agriculture (CGWNA) time series.

Our uncertainty regarding the accuracy of the domestic self-supply and agricultural groundwater withdrawal records for Florida and Georgia, and the conflicting results from the statistical trend analyses of these records when agriculture is separated out from the remaining water uses, suggest that the groundwater withdrawal data are not of sufficient quality to draw reliable conclusions about trends in these data or relationships with other hydrologic time series. Because the currently available groundwater withdrawal data in the study area are not of sufficient quality to draw reliable conclusions about trends in these data, no correlation analyses were conducted on these data.

Results from cluster analysis showed that groundwater level time series could be clustered into 2, 3, or 4 clusters. In all three cluster sets, the downward trending Georgia groundwater level stations clustered with the downward trending stations around Duval and Clay counties in Northeast Florida that showed the highest downward slopes. Similarly in all three cluster sets the wells with upward trends and very small negative slopes clustered together.

Because of the lack of confidence in the agricultural water use data, the high inter-annual variability of the rainfall and streamflow records, and the relatively short time period (1980-2007) over which the hydrologic data and groundwater withdrawal records were coincidently available, this study was not able to determine the causes of the downward trends in groundwater level that were detected. Therefore these trend and correlation analyses should be repeated periodically as longer hydrologic data records, and longer and more accurate groundwater withdrawal estimates, become available.

Future efforts should focus on methods to obtain more accurate groundwater withdrawal estimates, particularly for the agricultural water use category. While estimates of historic agricultural water use will always suffer from inaccuracies in crop acreage reporting, future estimates could incorporate crop modeling to more accurately estimate irrigation requirements or information that may become available from metering of agricultural water use in Florida.

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Appendix 1: SRWMD Florida Groundwater Level Stations

Following is a summary of the annual groundwater level data in Florida from continuous and monthly stations collected by the SRWMD that had 10 years of consistent data (at least 2 readings per year) within the January 1980 to December 2007 study period.

SRWMD ID	County	SJRWMD Site ID, Name	Start Year of record	# of Years
-111811001	Alachua	A-0004, Alto Straughn	1981	27
-092307001	Clay	C-0009, Melrose Well	1976	32
-081926001	Alachua	A-0056, Deerhaven Power Plant	1978	30
-081703001	Alachua	A-0002, High Springs	1964	33
-072215001	Bradford	B-0011, Hwy 100 Starke well	1976	32
-072132001	Bradford	B-0012, USGS Graham	1976	32
-061734001	Gilchrist	CO0008, DOF Oleno Tower	1976	32
-061629001	Columbia		1962	32
-061114001	Hamilton		1968	33
-052033002	Union		1905	14
-051933001	Union	U-0004, USGS nr Lake Butler UFA	1965	33
-051819001	Columbia	CO0005, David Wood SRWMD C-3	1976	32
-051428004	Suwannee		1982	26
-051311001	Suwannee		1969	34
-041923001	Union	U-0001, USGS Lake Butler UFA	1965	33
-041705001	Columbia	CO0010, FDOT Lake City	1948	33
-041625001	Columbia	CO0011, V Norton (Picadilly Pk)	1976	31
-041329001	Suwannee		1981	27
-041223004	Suwannee		1981	27
-041014001	Lafayette		1964	34
-032012001	Baker	BA0011, USGS B-11 at Sanderson	1965	29
-031908001	Baker	BA0015, Ocean Pond	1959	48
-031601003	Columbia		1981	27
-031232001	Suwannee		1979	29
-031105006	Suwannee		1981	27
-031012001	Lafayette		1976	32
-021934001	Baker	BA0024, unk Floridan well	1976	31
-021902001	Baker	BA0005, Floridan withdrawal well	1976	31
-021805001	Columbia	CO0007, ONF 3A	1980	28
-021624001	Columbia		1976	32
-021516001	Suwannee		1961	45
-021335001	Suwannee	SW0078, unk UF well	1976	32
-012029001	Baker	BA0018, ONF-6	1976	32
-012003001	Baker	BA0009, Taylor SR250 & SR125	1973	28

SRWMD ID	County	SJRWMD Site ID, Name	Start Year of record	# of Years
-011727001	Columbia	CO0117, ONF-1	1978	30
-011534001	Hamilton	H-0071, Hilward Morgan UF well	1981	27
-011511001	Hamilton		1975	28
-011035001	Madison		1976	32
+010719001	Madison		1961	33
+011316001	Hamilton		1976	32
+011422007	Hamilton	H-0072, unk UF well	1981	27
+011608001	Hamilton		1976	32
+021002001	Madison		1976	32
+021125001	Hamilton		1981	27
+021432001	Hamilton	H-0073, unk UF well	1976	32
-102006001	Alachua	A-0019, Geological Dept UF	1976	32
-101722001	Alachua	A-0068, USGS CE 1A Newberry	1965	33
-091938002	Alachua	A-0075, DNR San Felasco	1980	28
-091607001	Gilchrist	GI0065, USGS Trenton	1976	32
-091420001	Gilchrist		1976	32
-062102001	Bradford	B-0010, Hwy 229, Raiford	1960	33
+021211001	Hamilton		1977	31

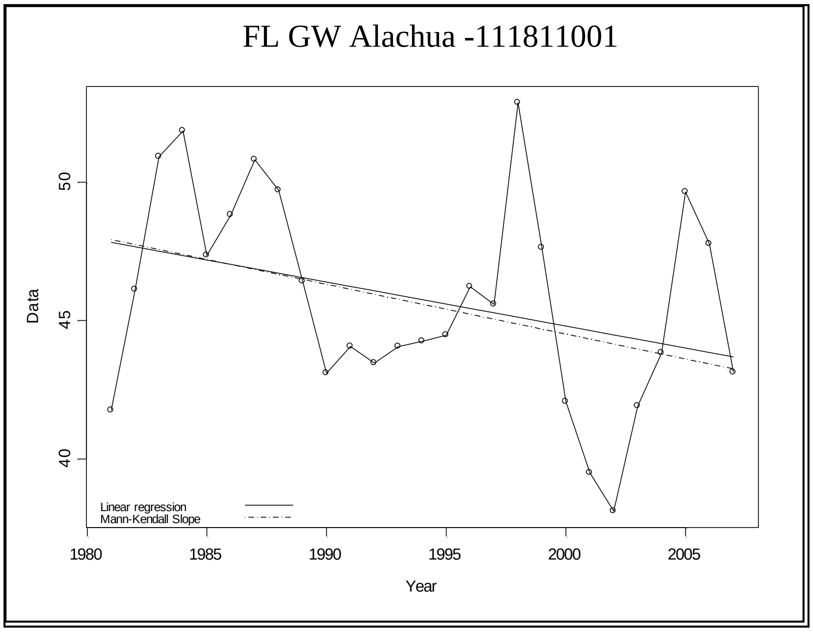
Appendix 2: USGS Georgia Groundwater Level Stations

Following is a summary of the annual groundwater level data in Georgia from continuous and monthly stations collected by the SRWMD that have at least 10 years of consistent data (at least 2 measures per year) between 1980 and 2007.

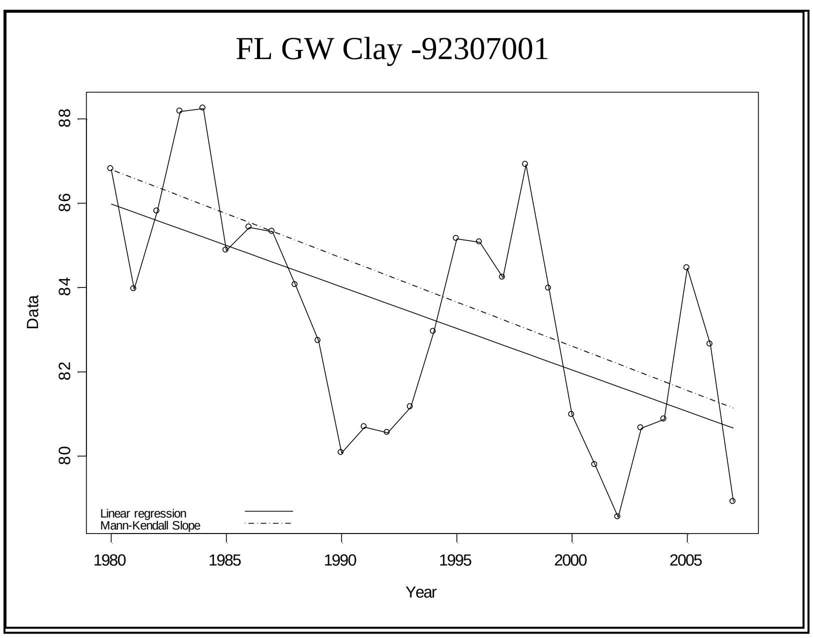
SiteID	County	Start Year	# of Years
312712082593301	Tift	1978	30
310706082155101	Ware	1981	27
304942082213801	Charlton	1978	29
313146083491601	Worth	1972	36
314330084005402	Worth	1980	28
304949083165301	Lowndes	1971	37
310813083260301	Cook	1965	43

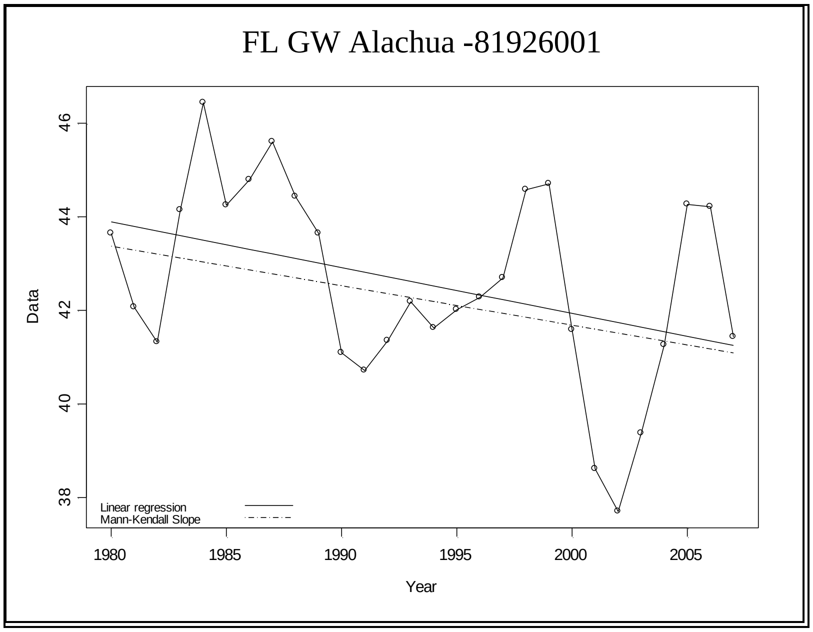
Appendix 3: SRWMD Florida Groundwater Level Trend

Following is a summary of the trend detection plots of SJRWMD groundwater level data. Annual average groundwater level data in feet above NGVD 1929 were labeled as “data” (y-axes) and plotted against record year (x-axes).

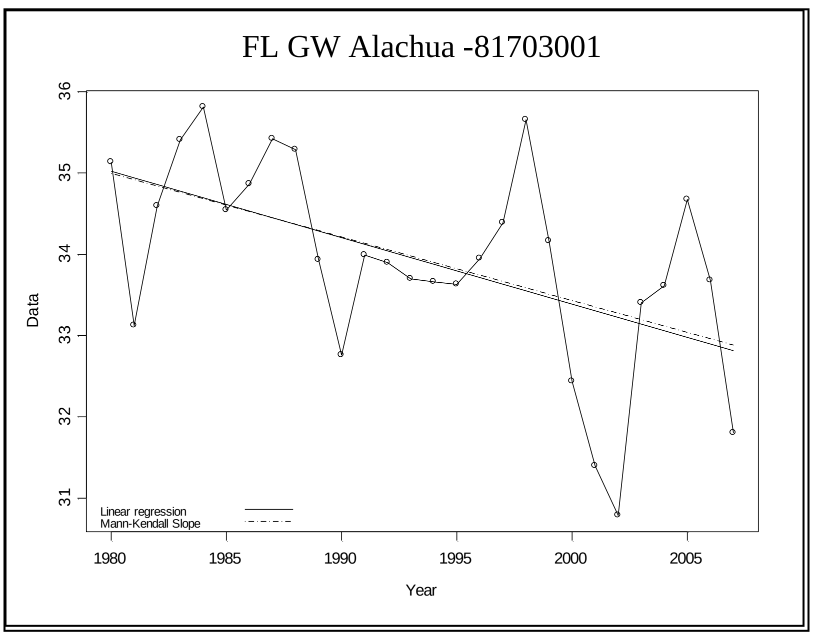


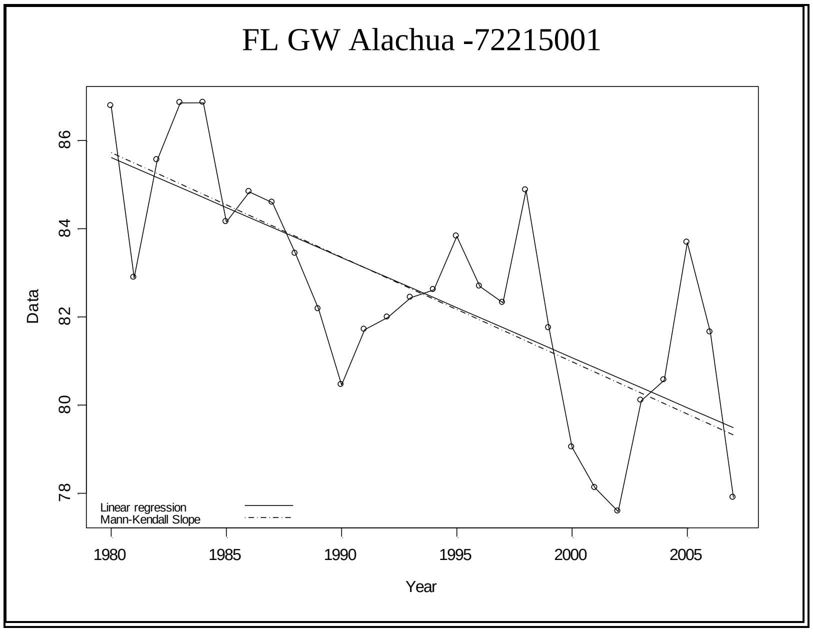
Data = annual average groundwater level in feet above NGVD 1929



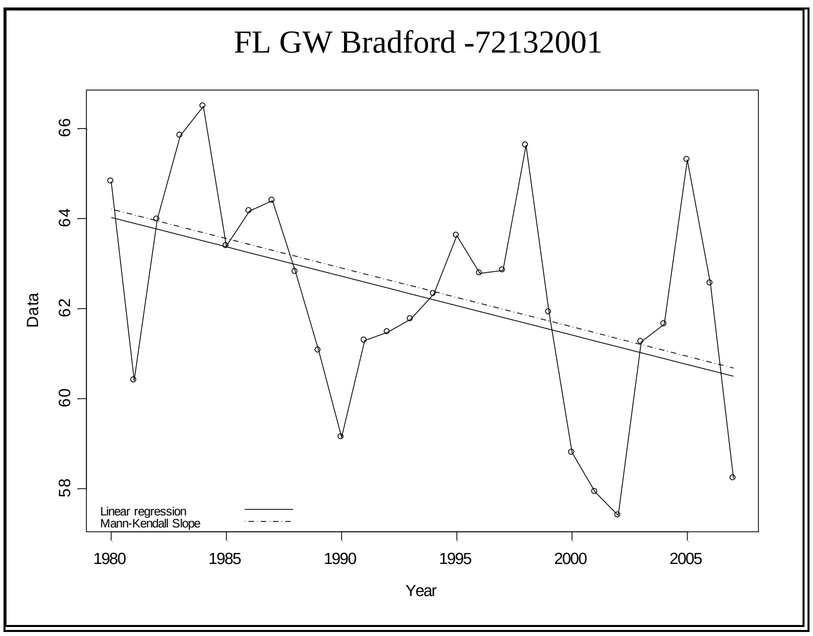


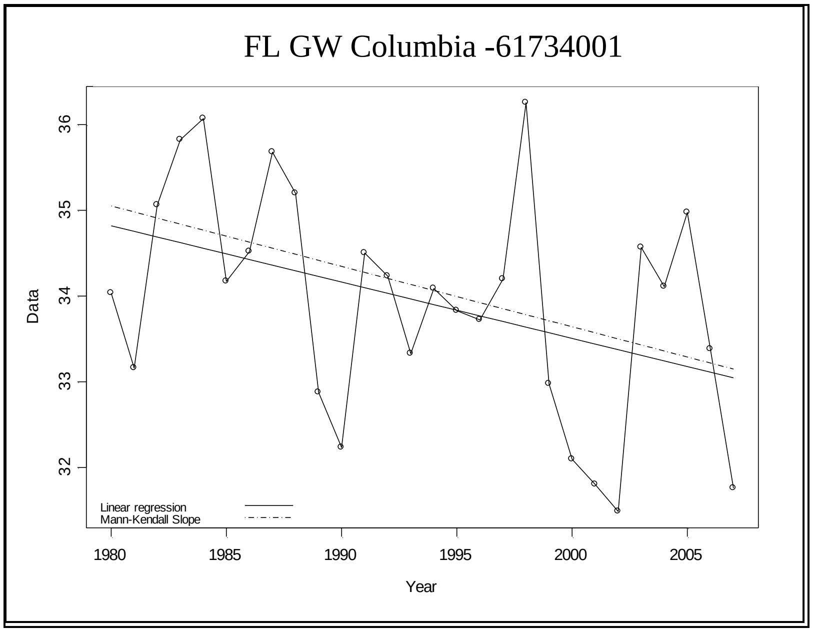
Data = annual average groundwater level in feet above NGVD 1929



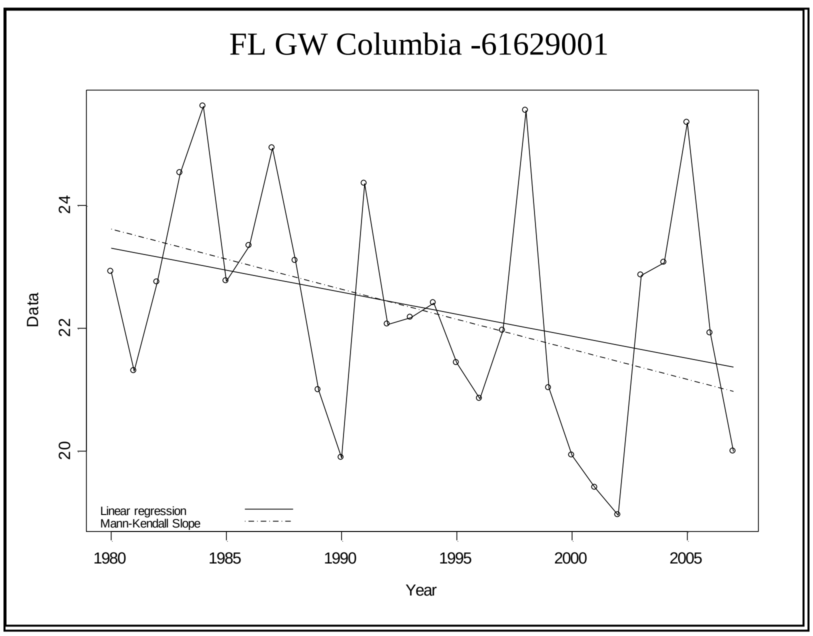


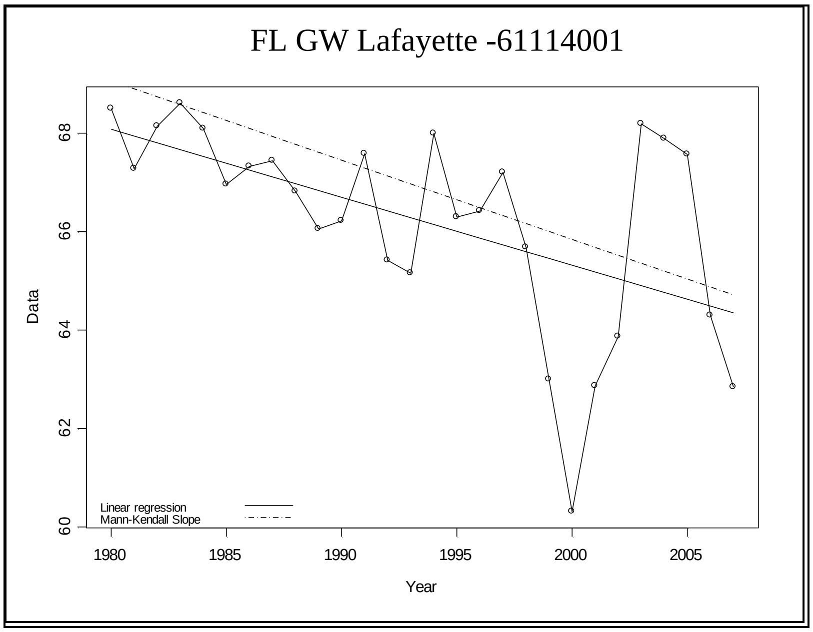
Data = annual average groundwater level in feet above NGVD 1929



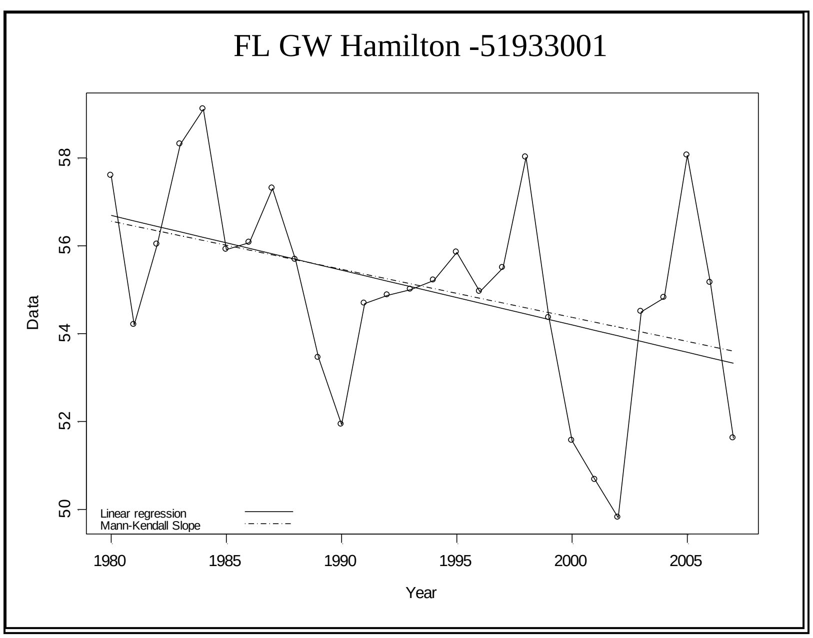


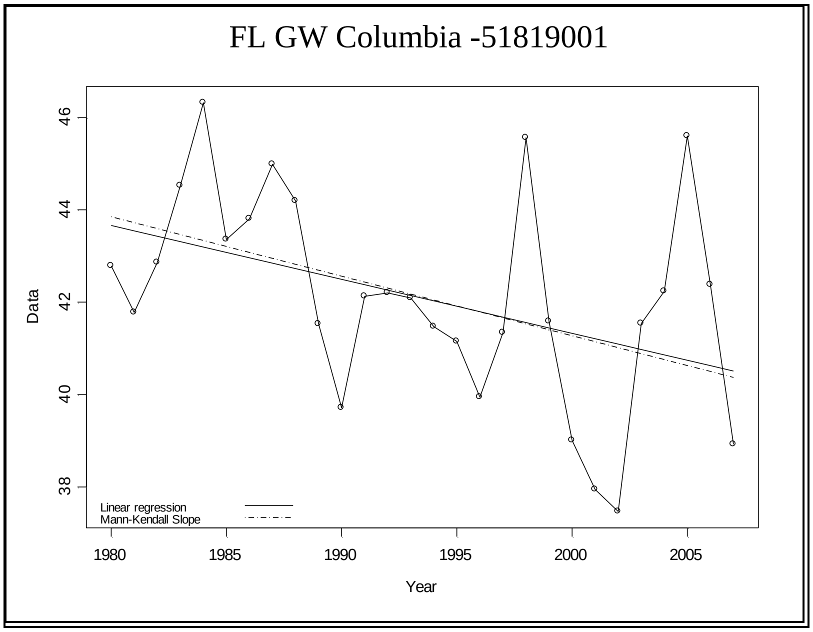
Data = annual average groundwater level in feet above NGVD 1929



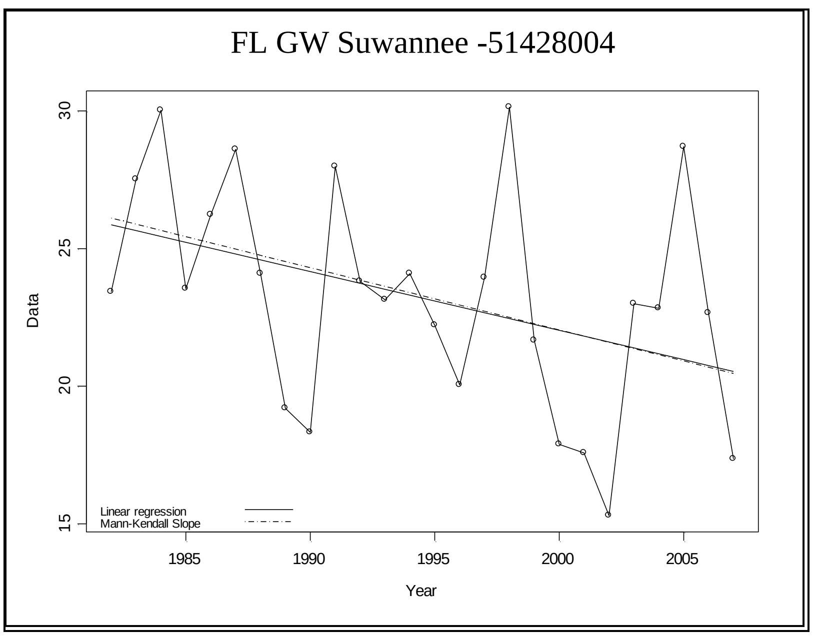


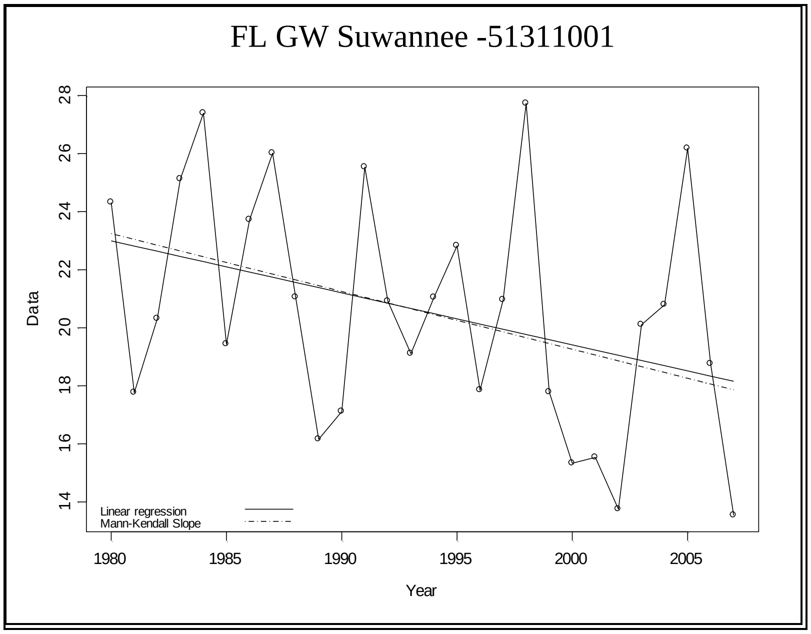
Data = annual average groundwater level in feet above NGVD 1929



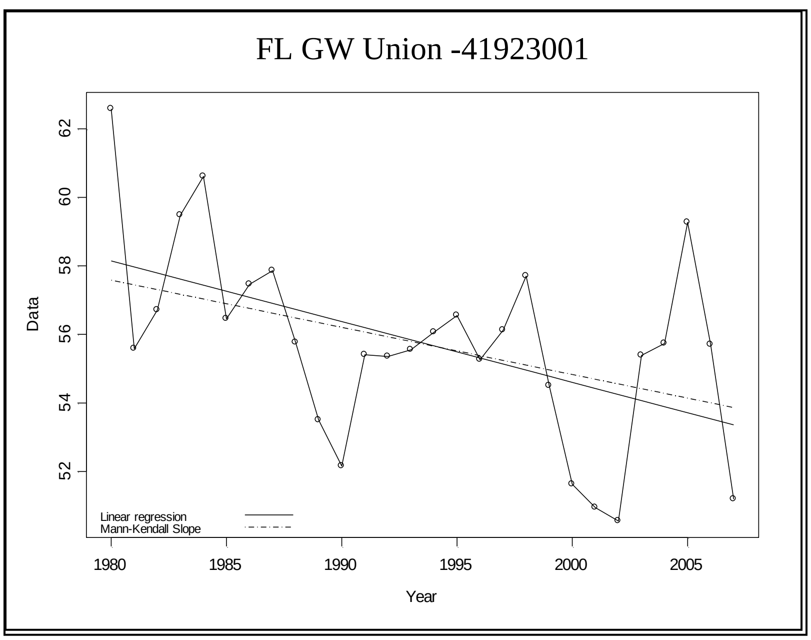


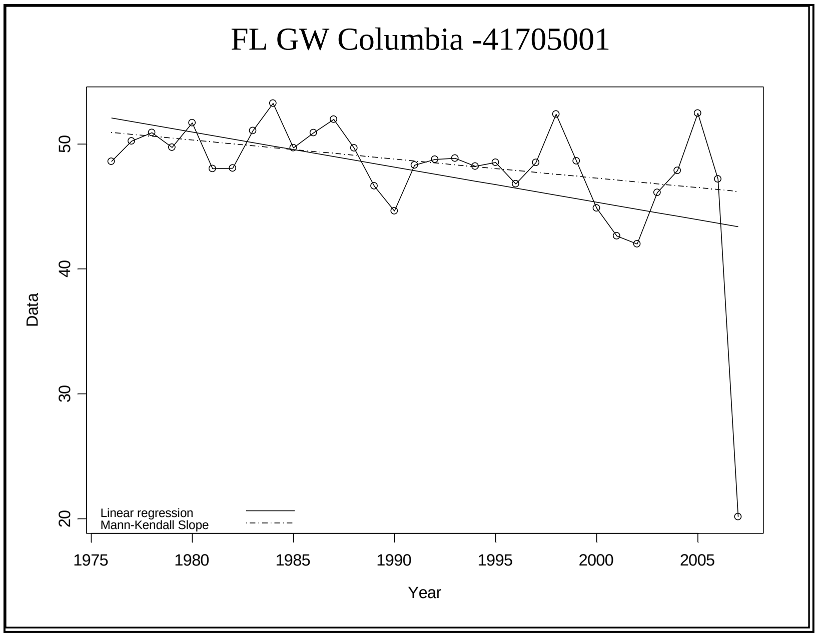
Data = annual average groundwater level in feet above NGVD 1929



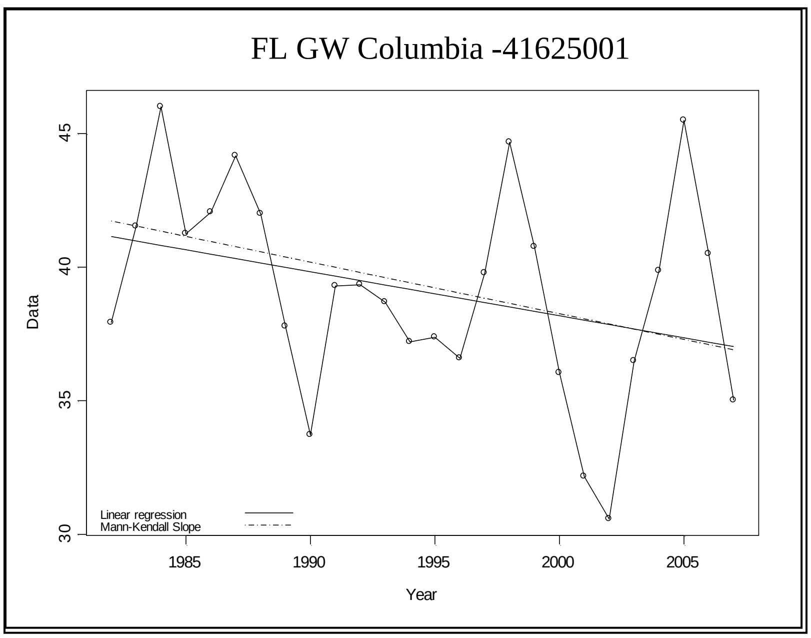


Data = annual average groundwater level in feet above NGVD 1929

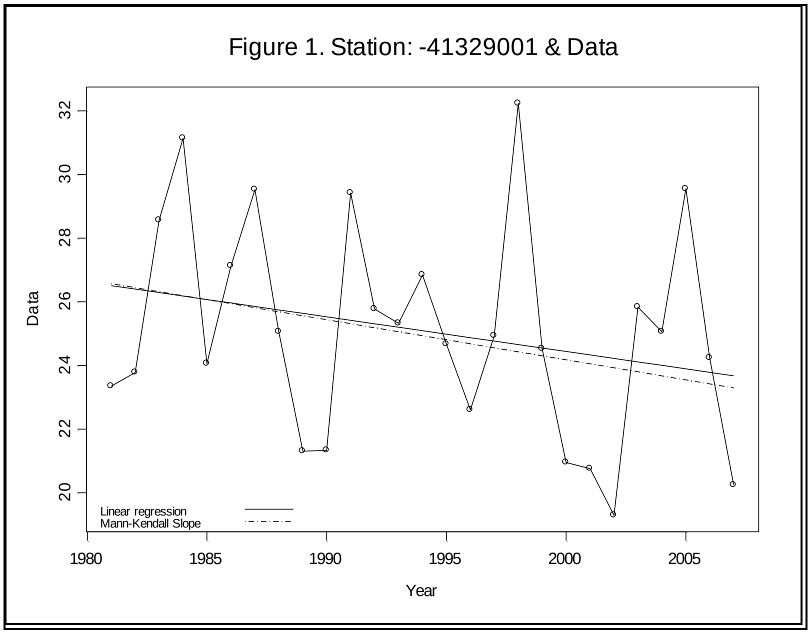




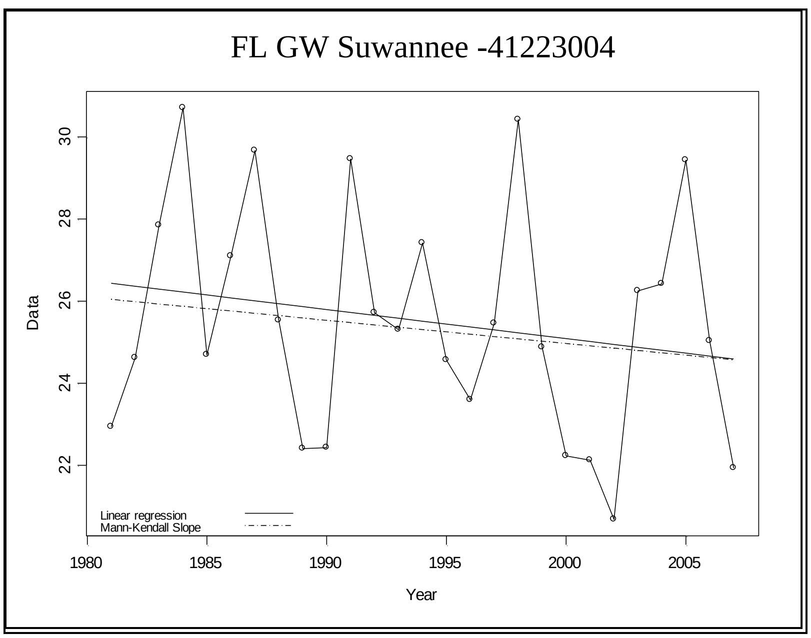
Data = annual average groundwater level in feet above NGVD 1929

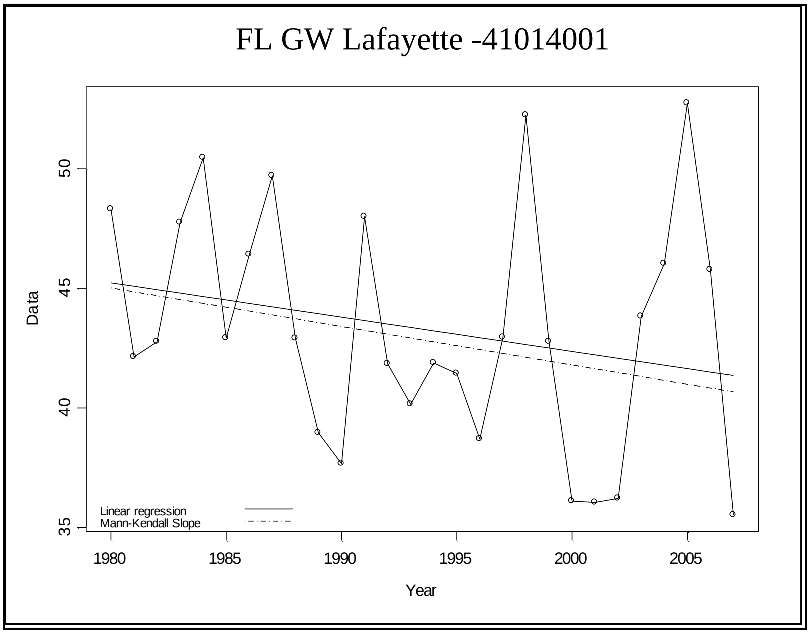


FL GW Suwannee -41329001

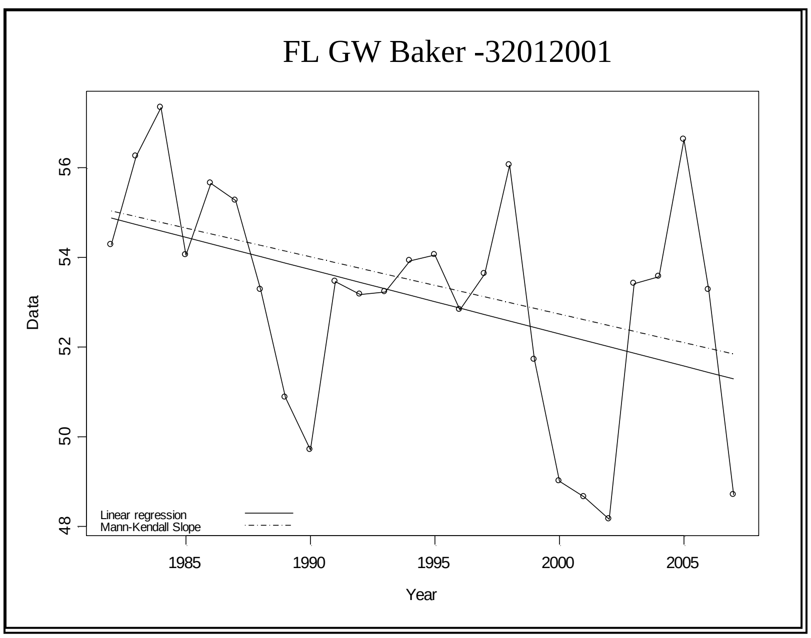


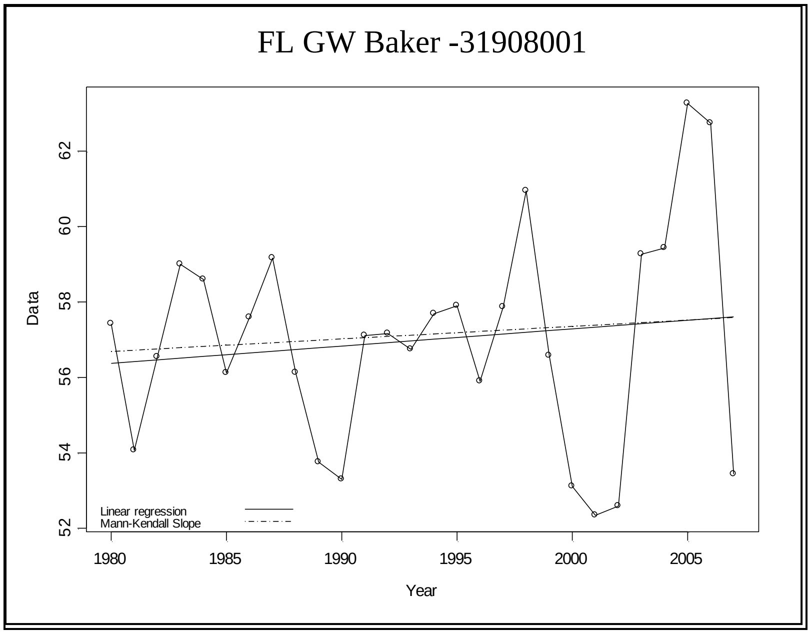
Data = annual average groundwater level in feet above NGVD 1929



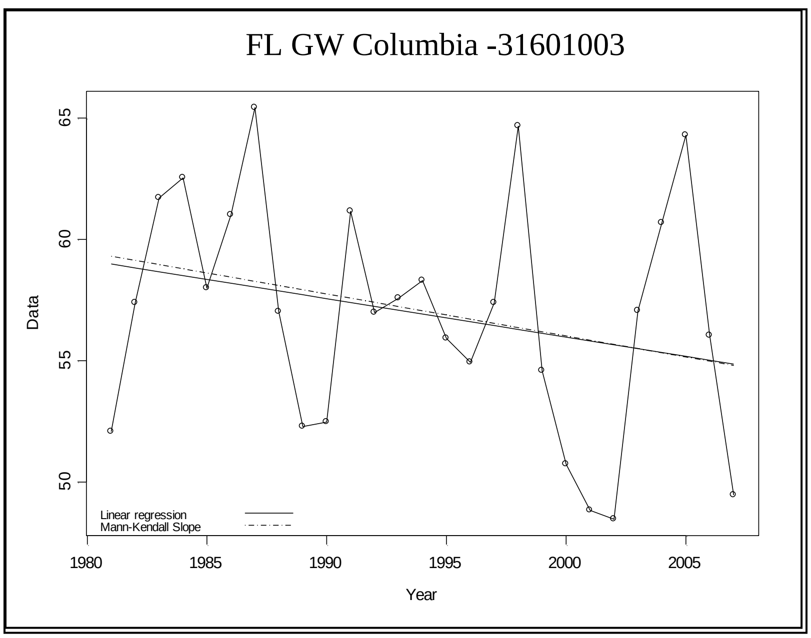


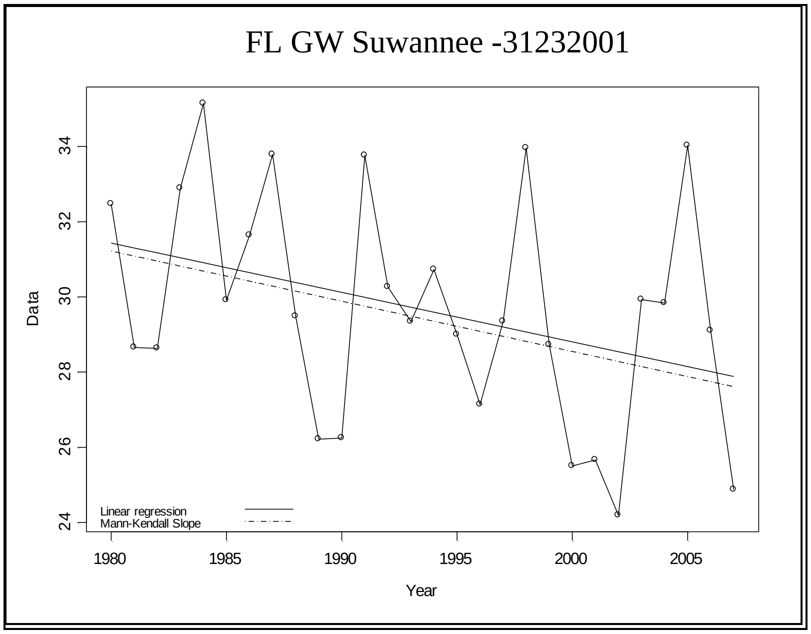
Data = annual average groundwater level in feet above NGVD 1929



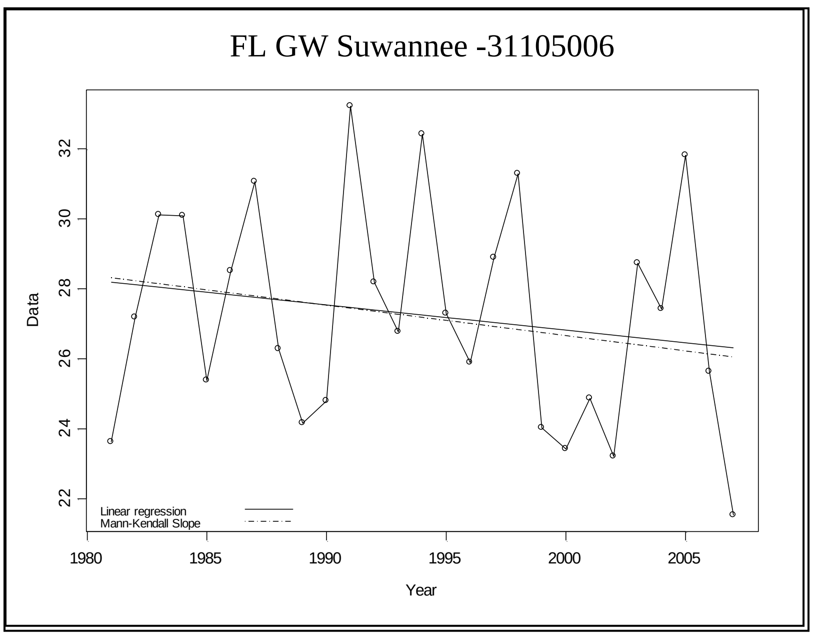


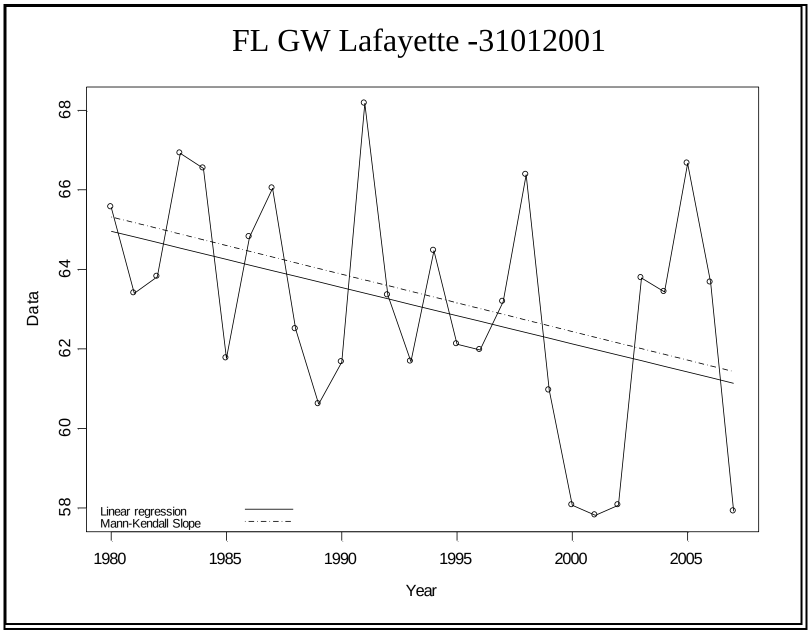
Data = annual average groundwater level in feet above NGVD 1929



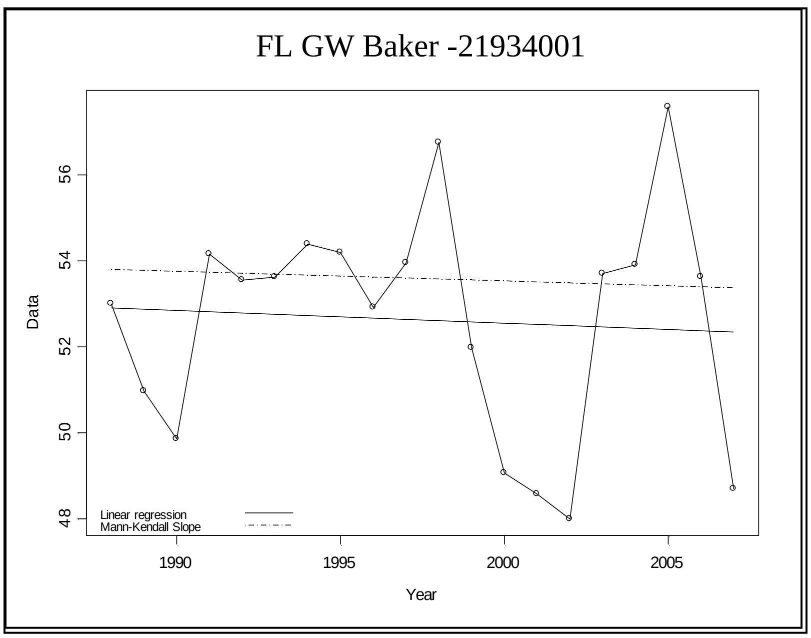


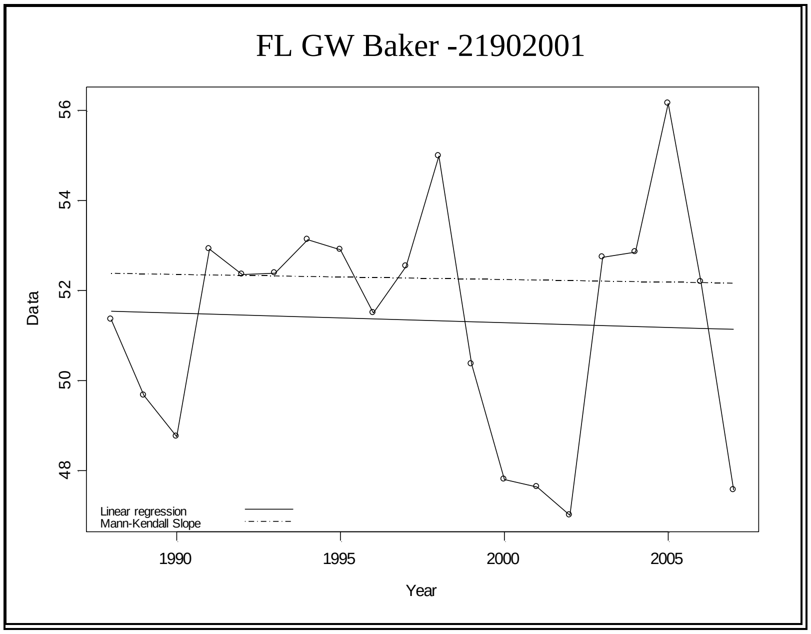
Data = annual average groundwater level in feet above NGVD 1929



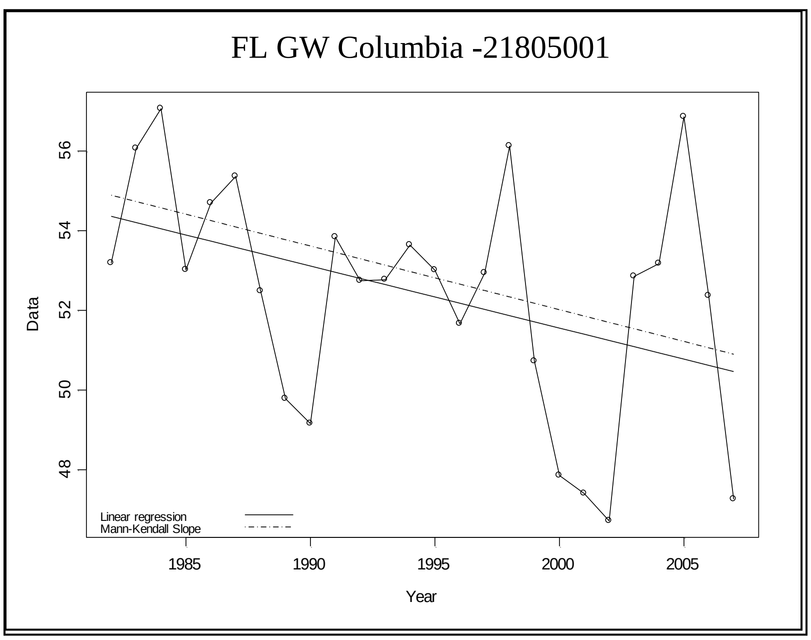


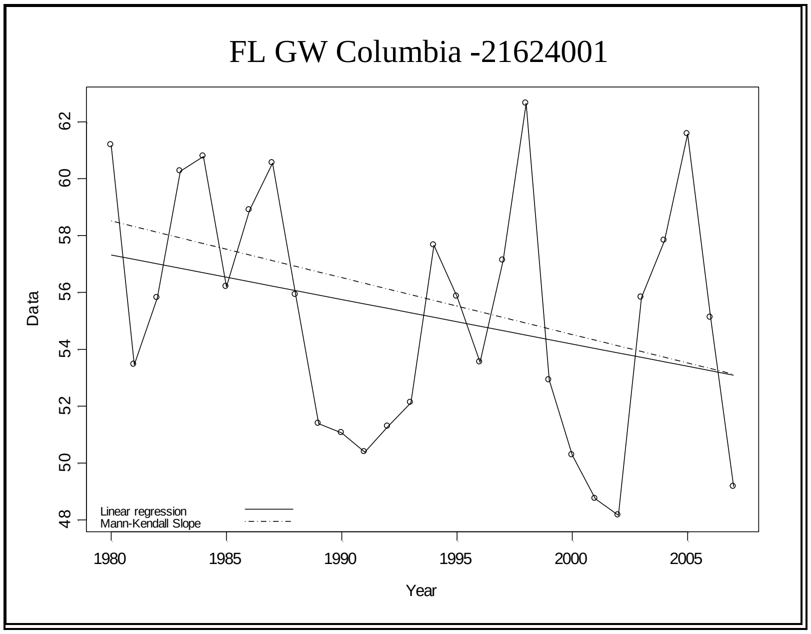
Data = annual average groundwater level in feet above NGVD 1929



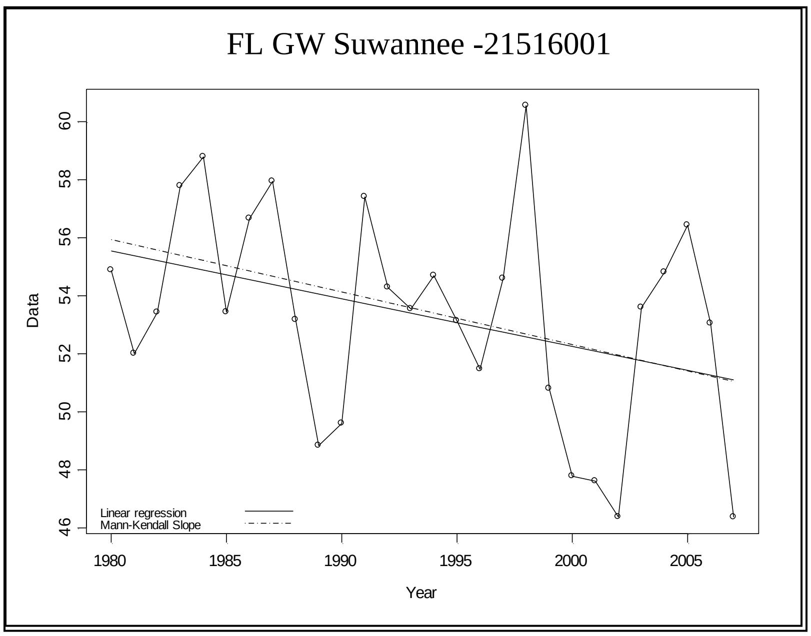


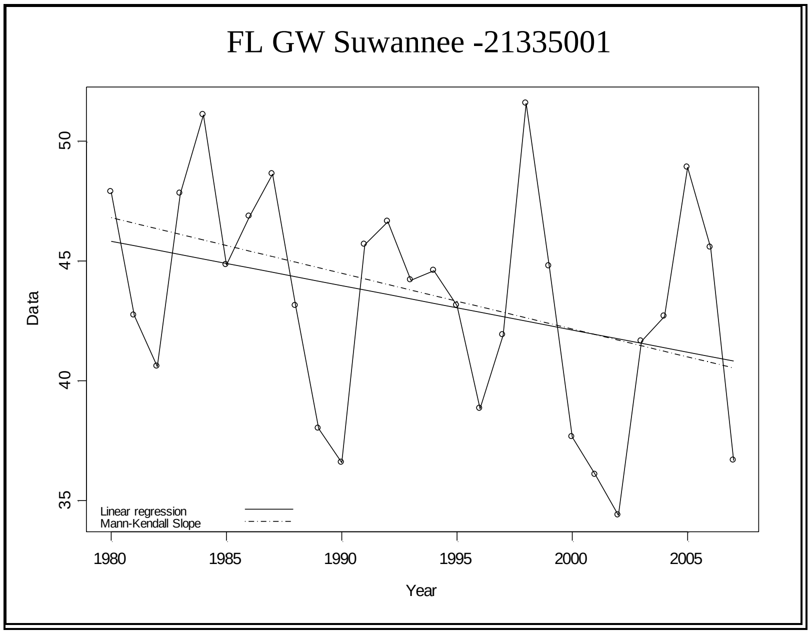
Data = annual average groundwater level in feet above NGVD 1929



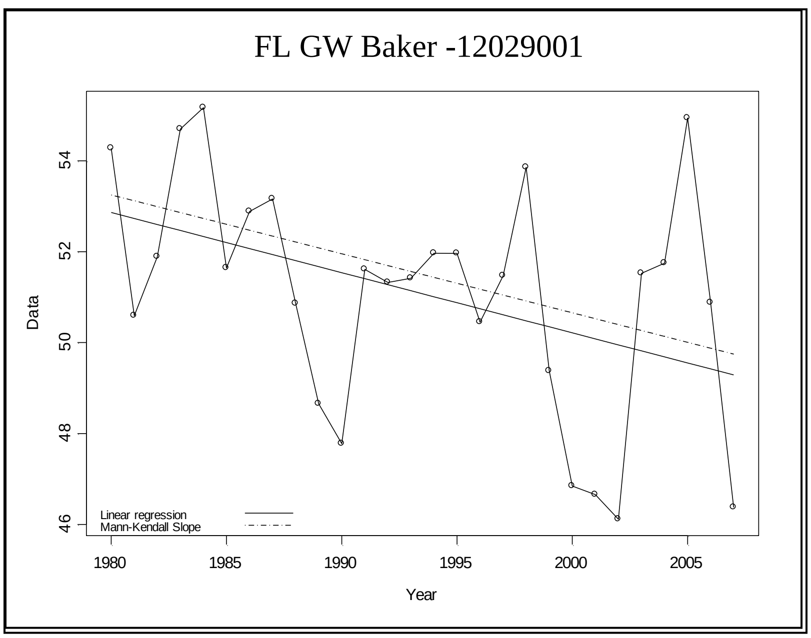


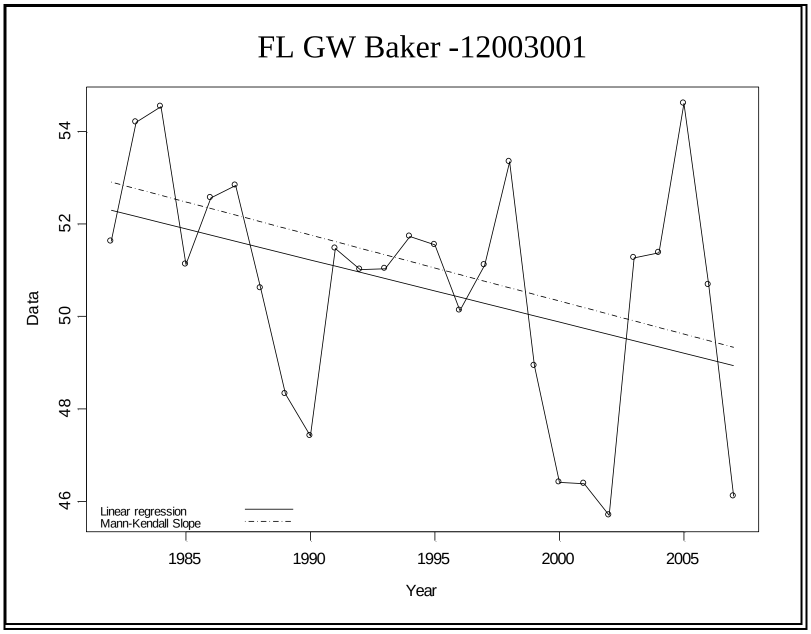
Data = annual average groundwater level in feet above NGVD 1929



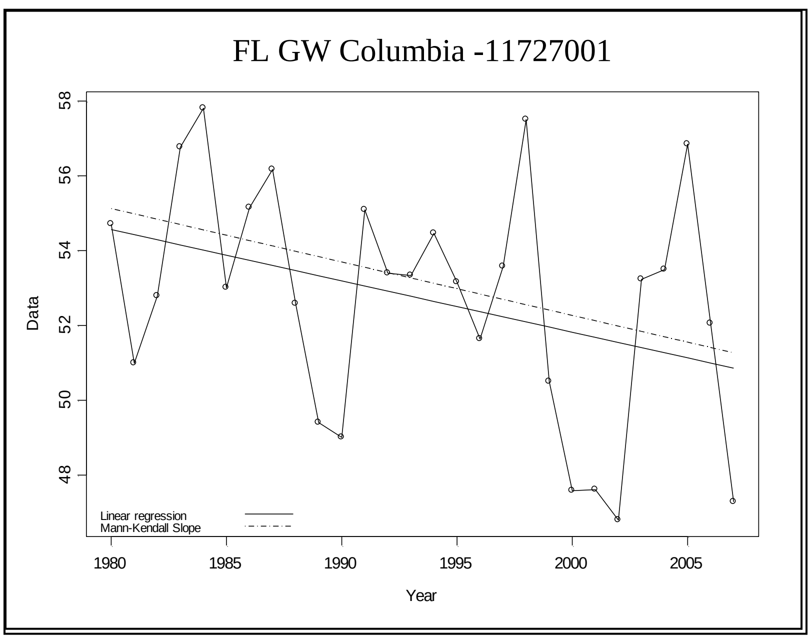


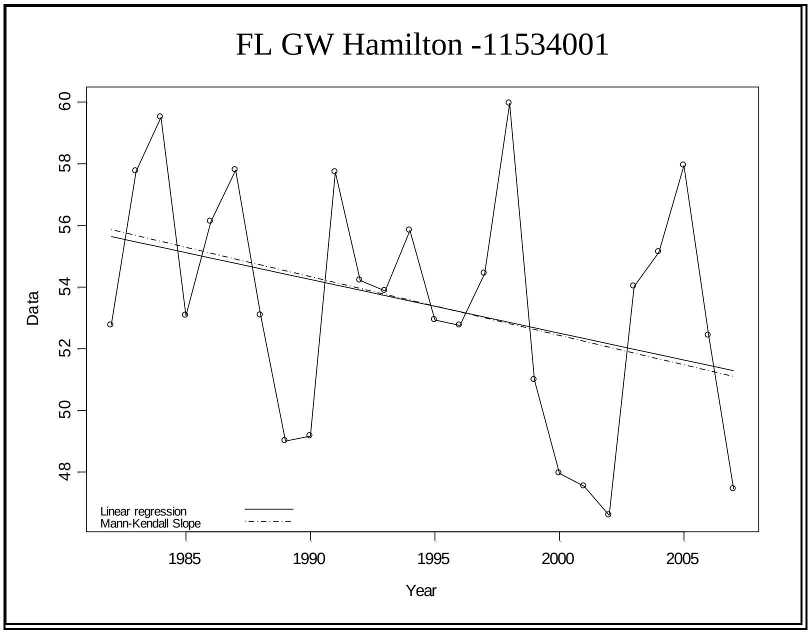
Data = annual average groundwater level in feet above NGVD 1929



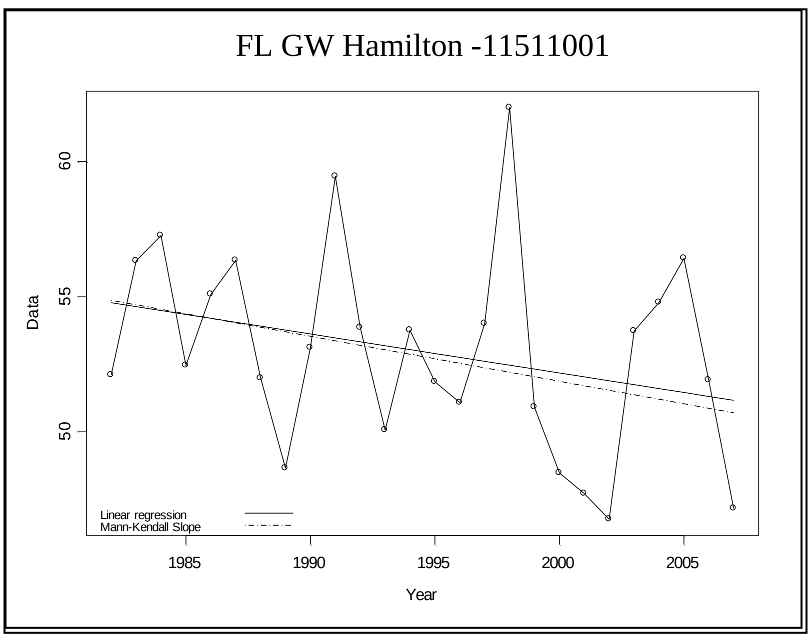


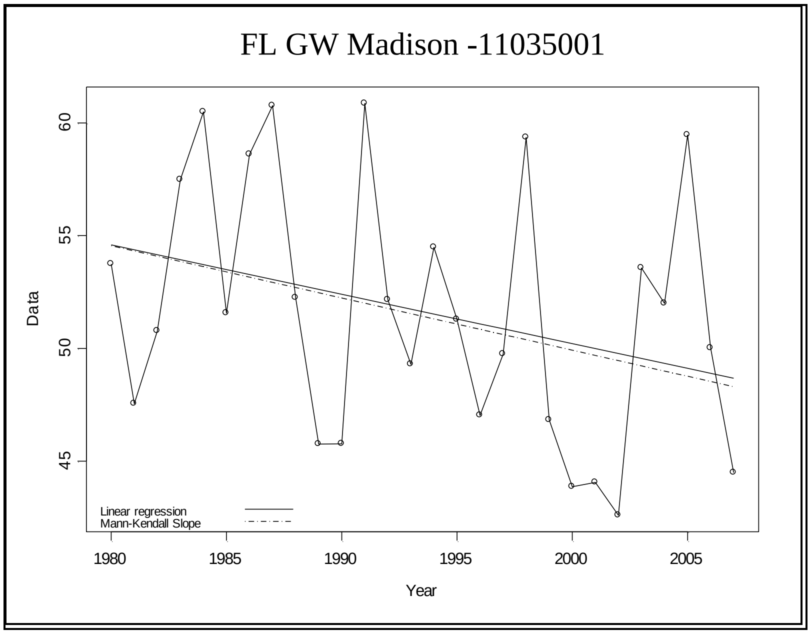
Data = annual average groundwater level in feet above NGVD 1929



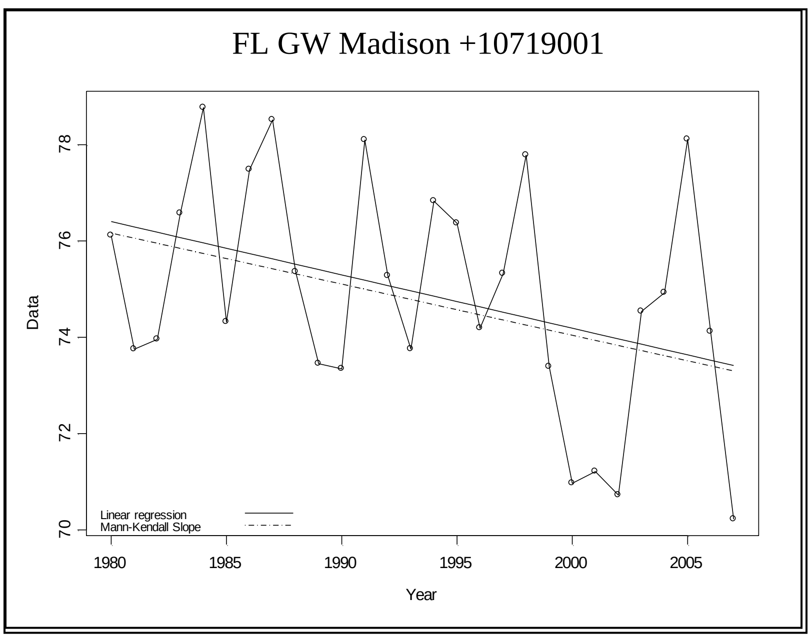


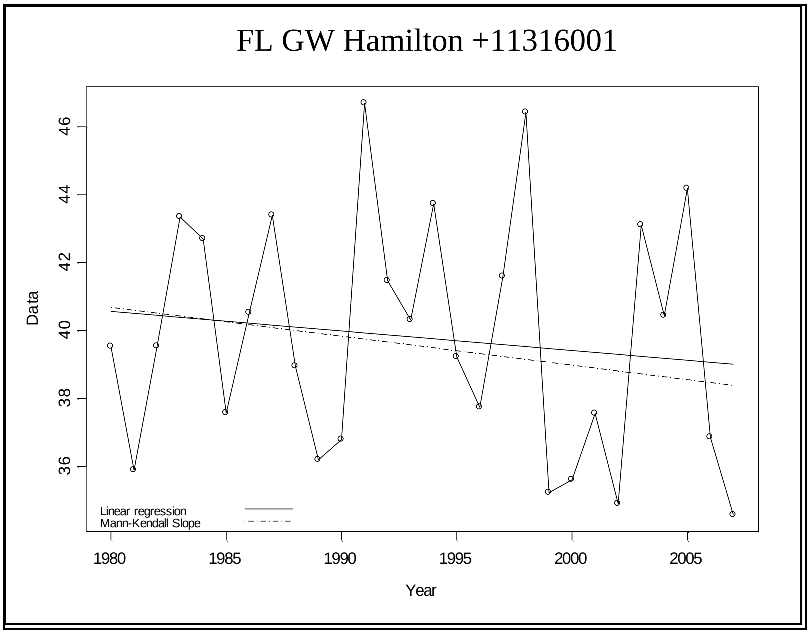
Data = annual average groundwater level in feet above NGVD 1929



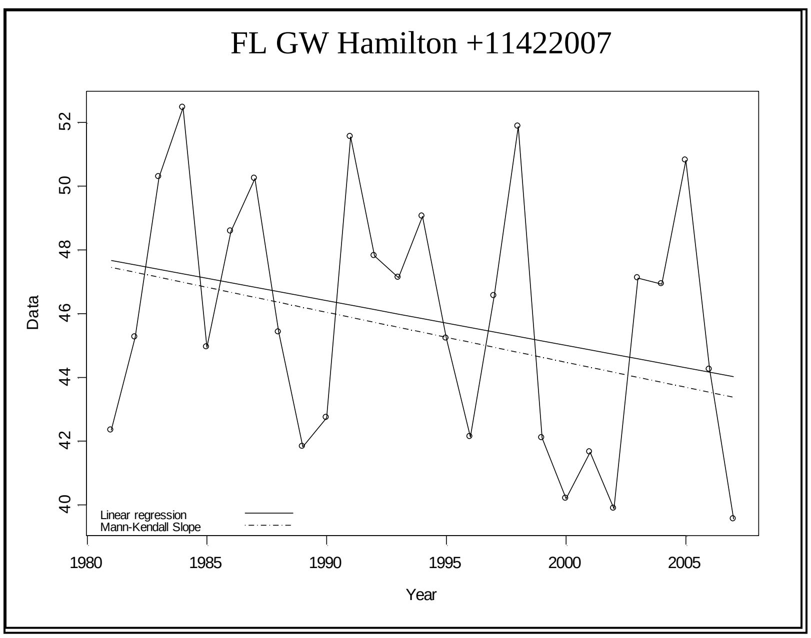


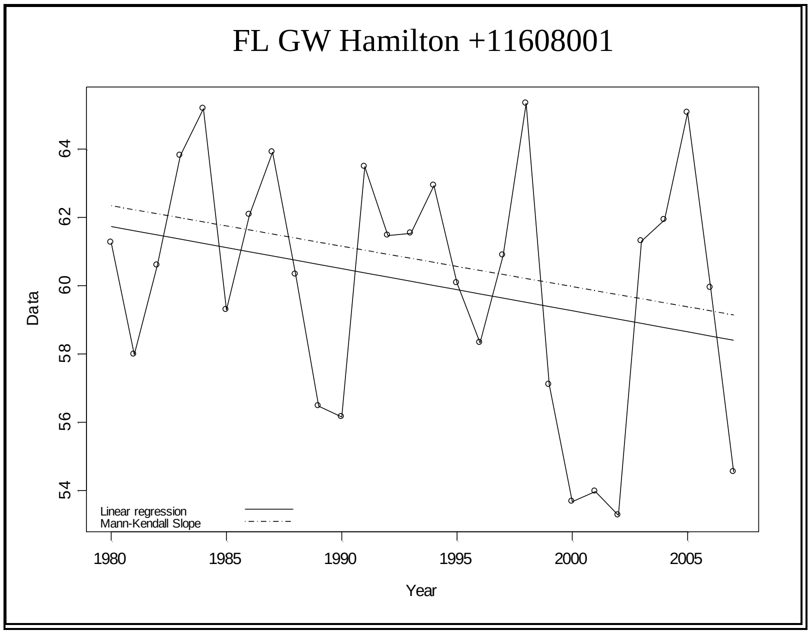
Data = annual average groundwater level in feet above NGVD 1929



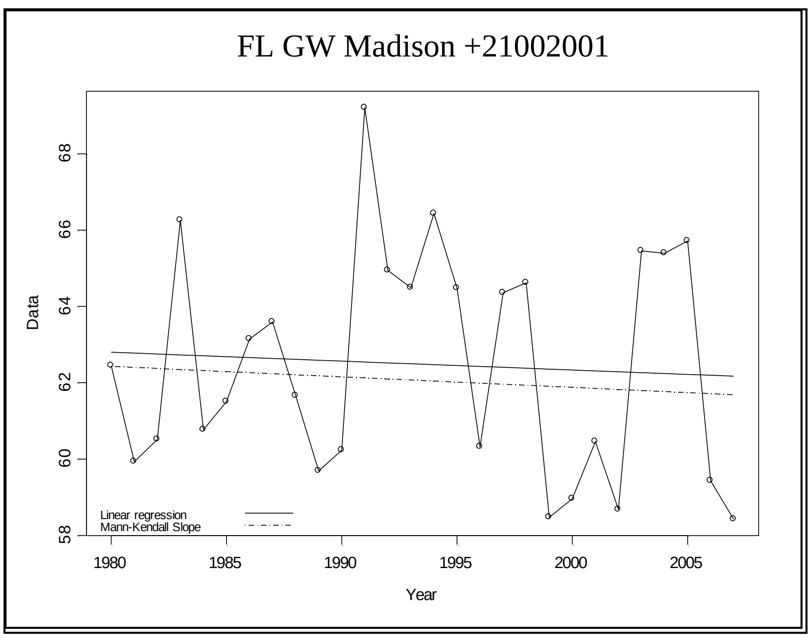


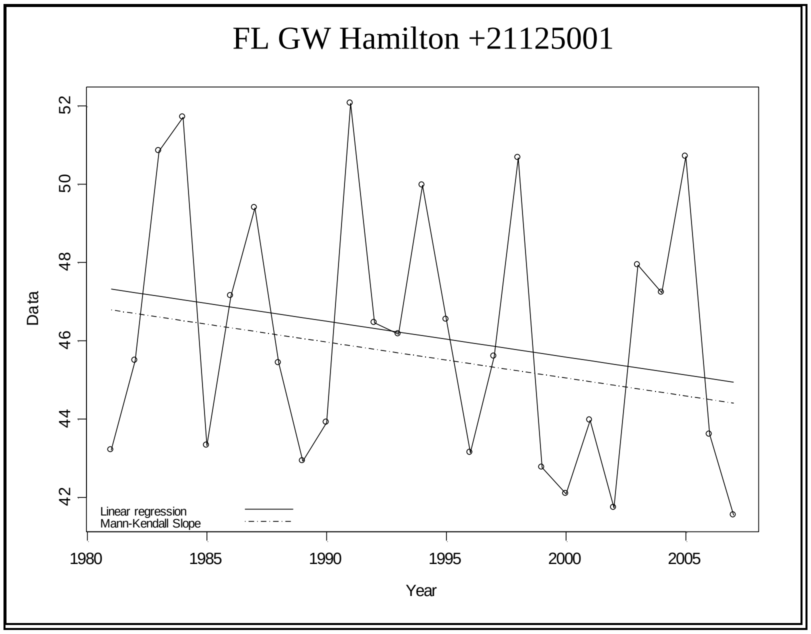
Data = annual average groundwater level in feet above NGVD 1929



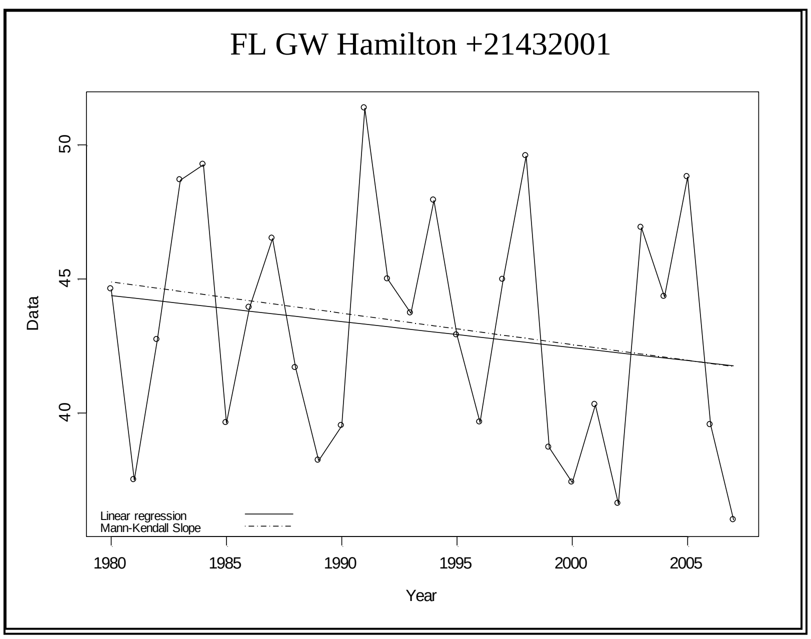


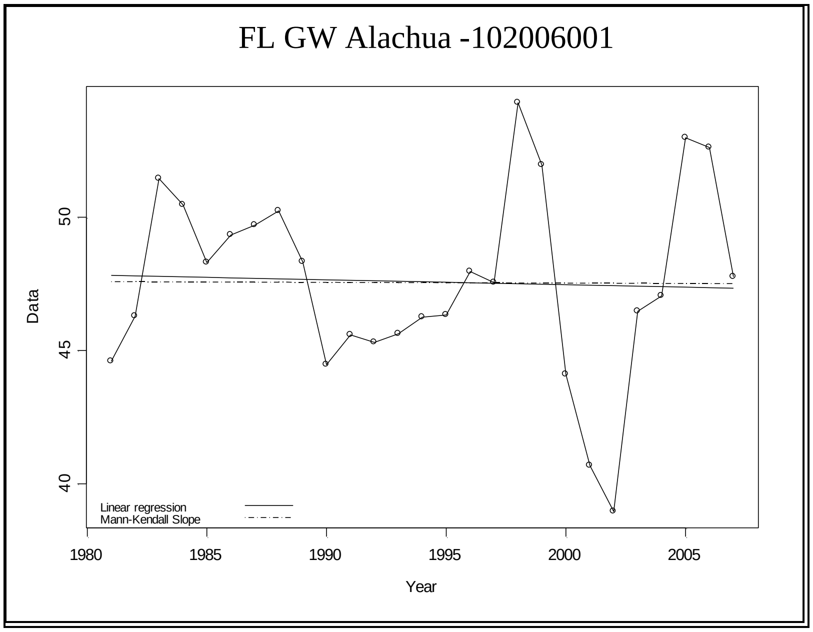
Data = annual average groundwater level in feet above NGVD 1929



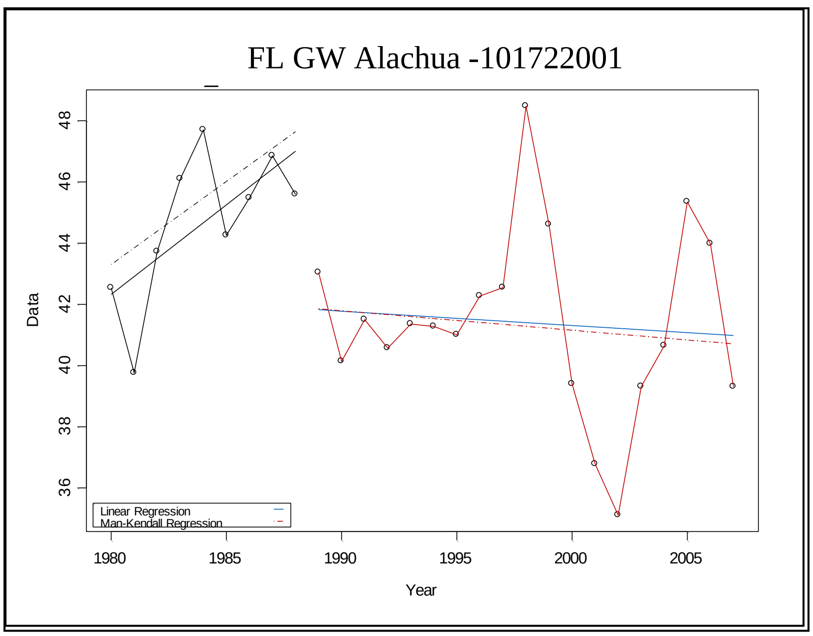


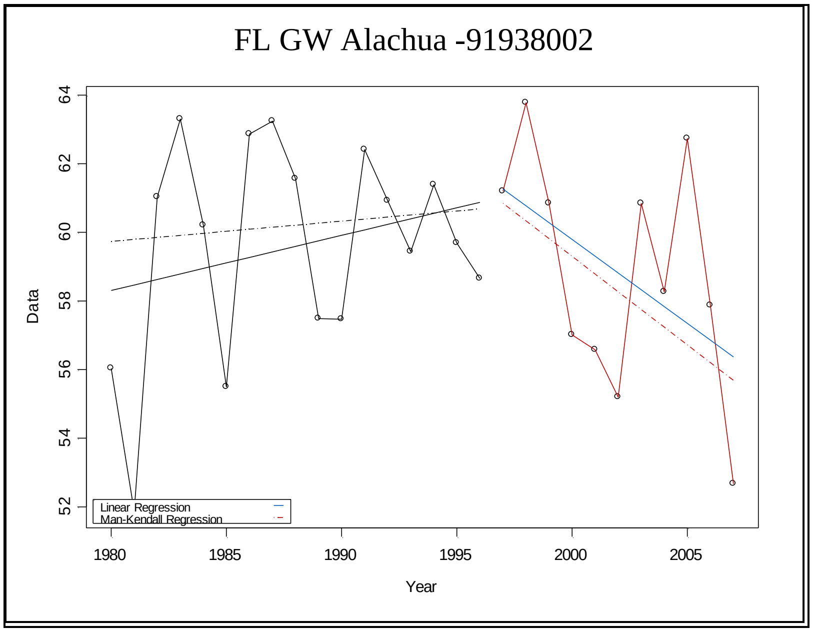
Data = annual average groundwater level in feet above NGVD 1929

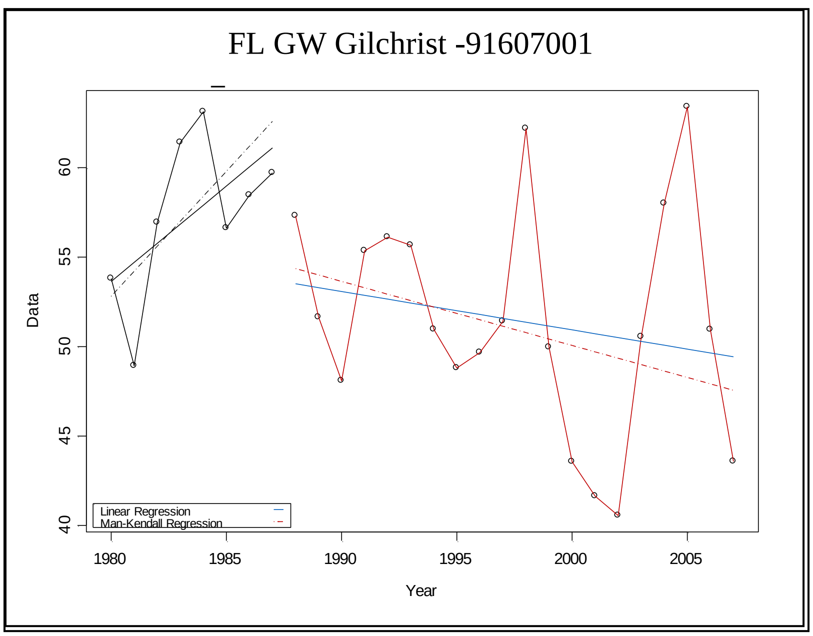


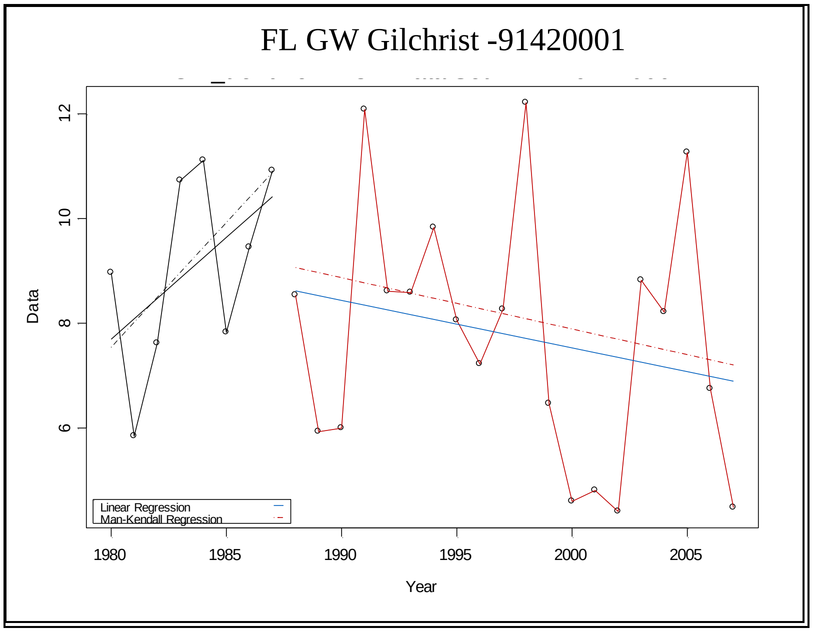


Data = annual average groundwater level in feet above NGVD 1929

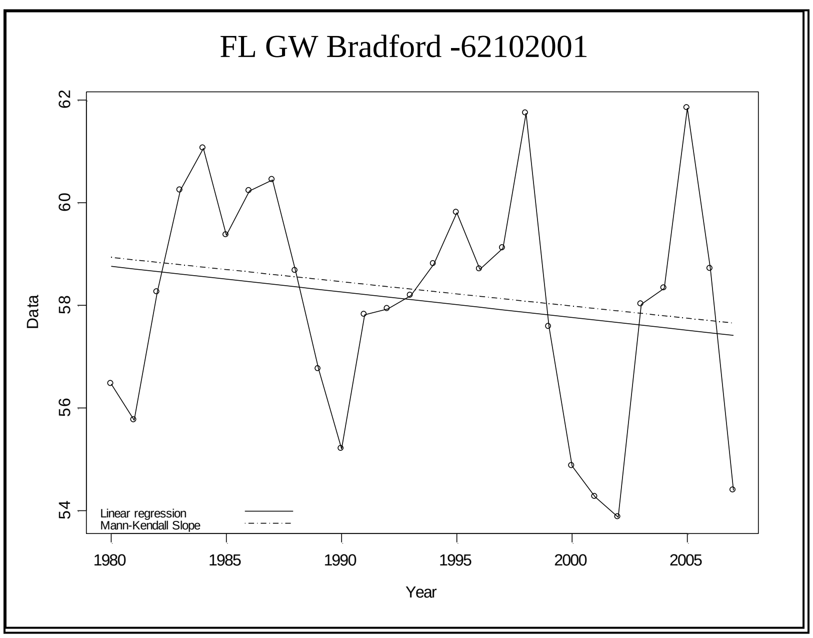



FL GW Alachua -91938002
Data
64
62
60
58
56
54
52
Linear Regression
Man-Kendall Regression
1980
1985
1990
1995
2000
2005
Year

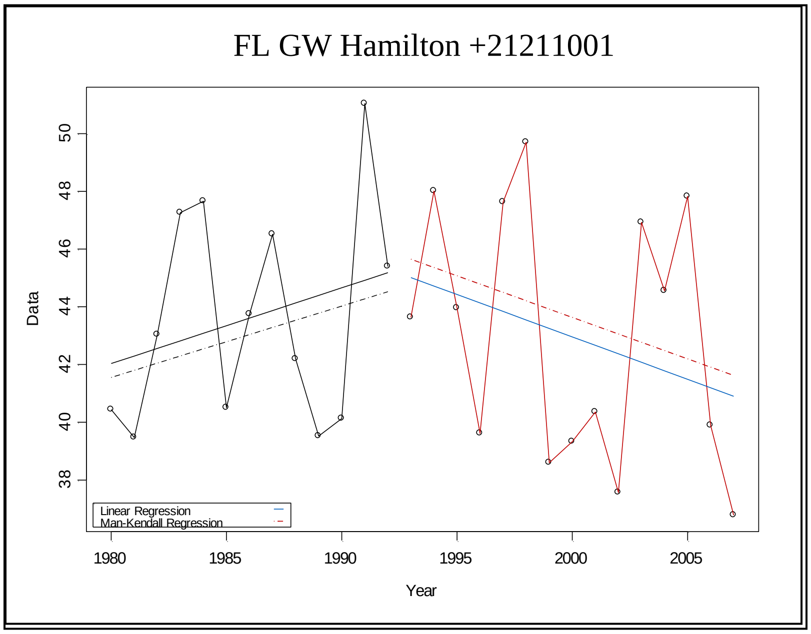

FL GW Gilchrist -91607001
Data
60
55
50
45
40
Linear Regression
Man-Kendall Regression
1980
1985
1990
1995
2000
2005
Year



Data = annual average groundwater level in feet above NGVD 1929



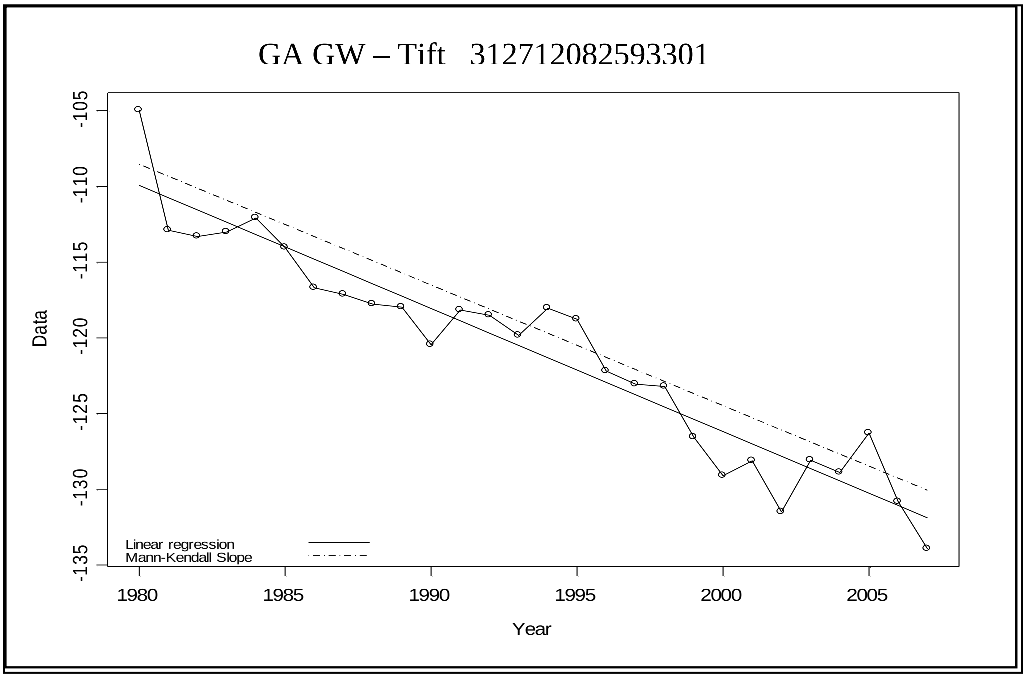
Data = annual average groundwater level in feet above NGVD 1929



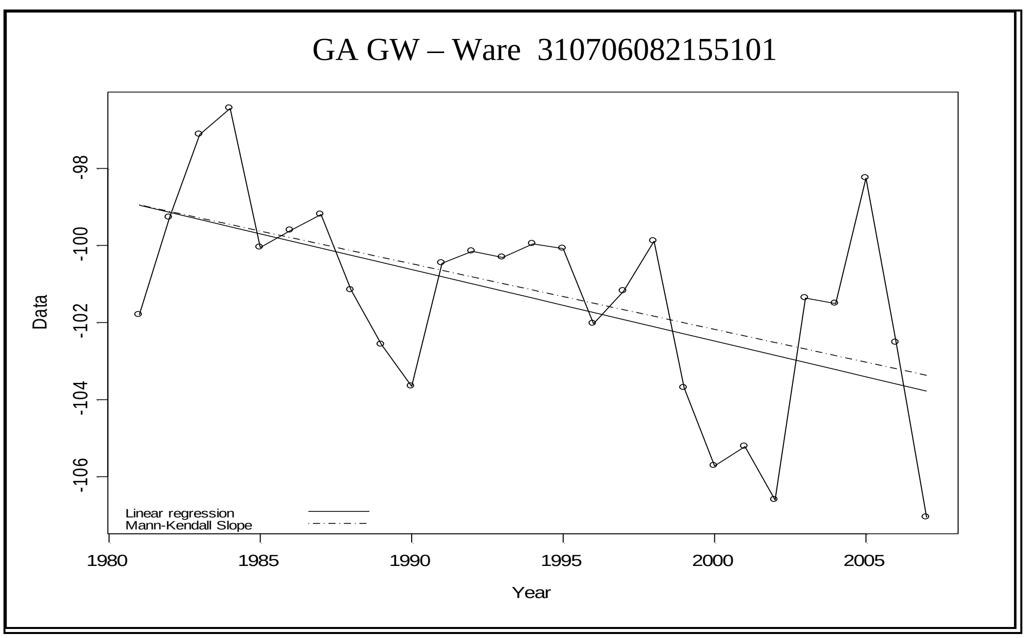
Data = annual average groundwater level in feet above NGVD 1929

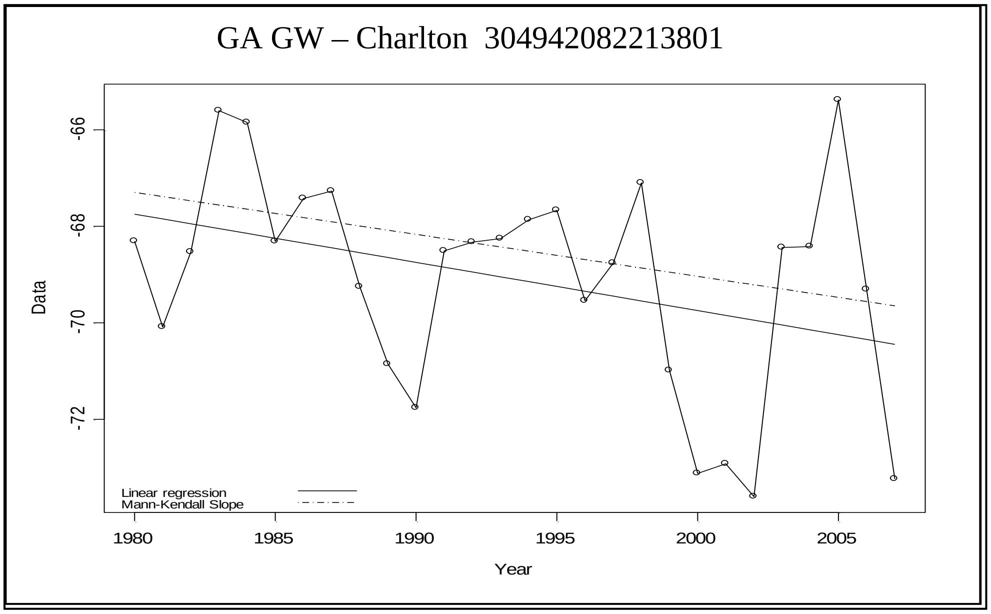
Appendix 4: USGS Georgia Groundwater Level Trend

Following is a summary of the trend detection plots of Georgia groundwater level data. Annual average groundwater level data in feet referenced to land surface are labeled as “data” (y-axes) and plotted against record year (x-axes). Negative values indicate groundwater level is below land surface.

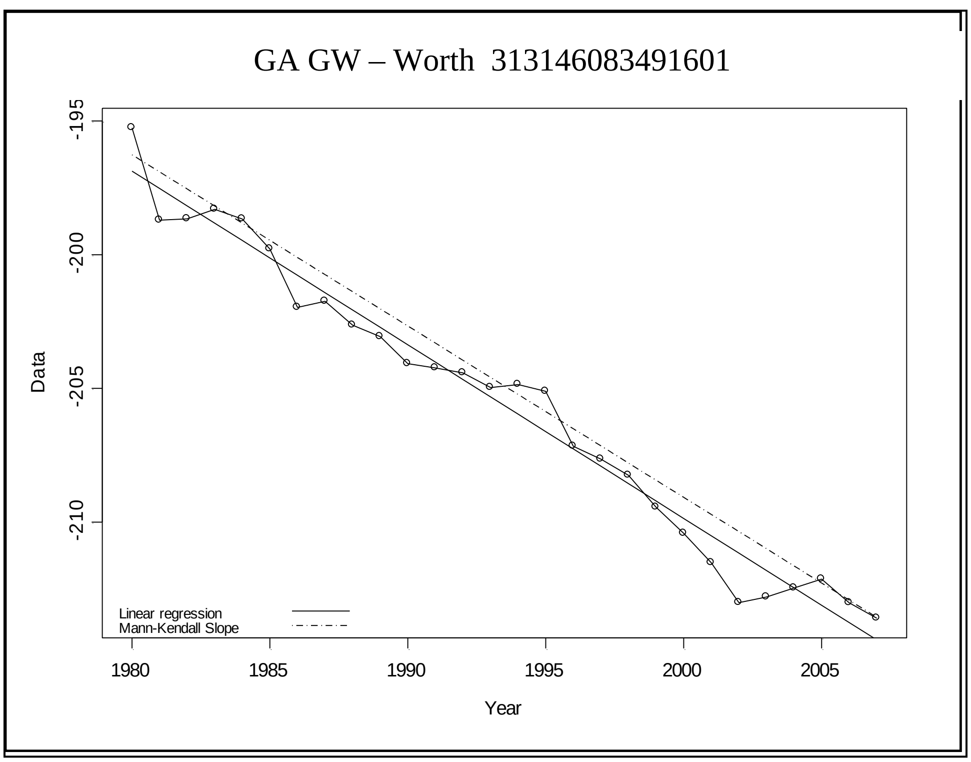


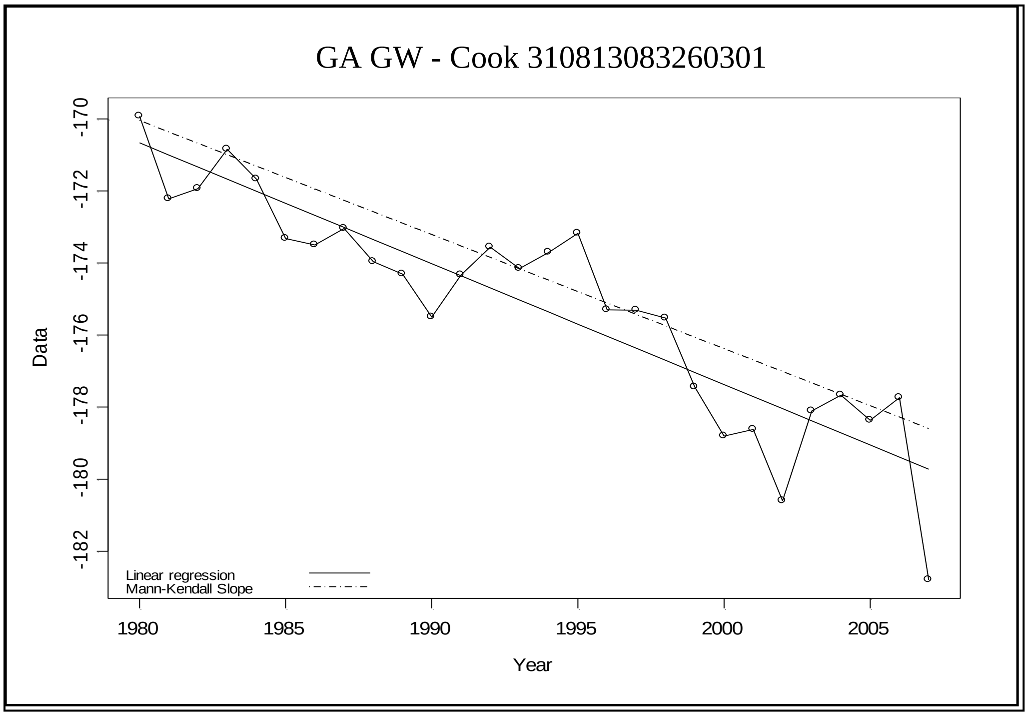
Data = annual average groundwater level in feet referenced to land surface. Negative values indicate below land surface



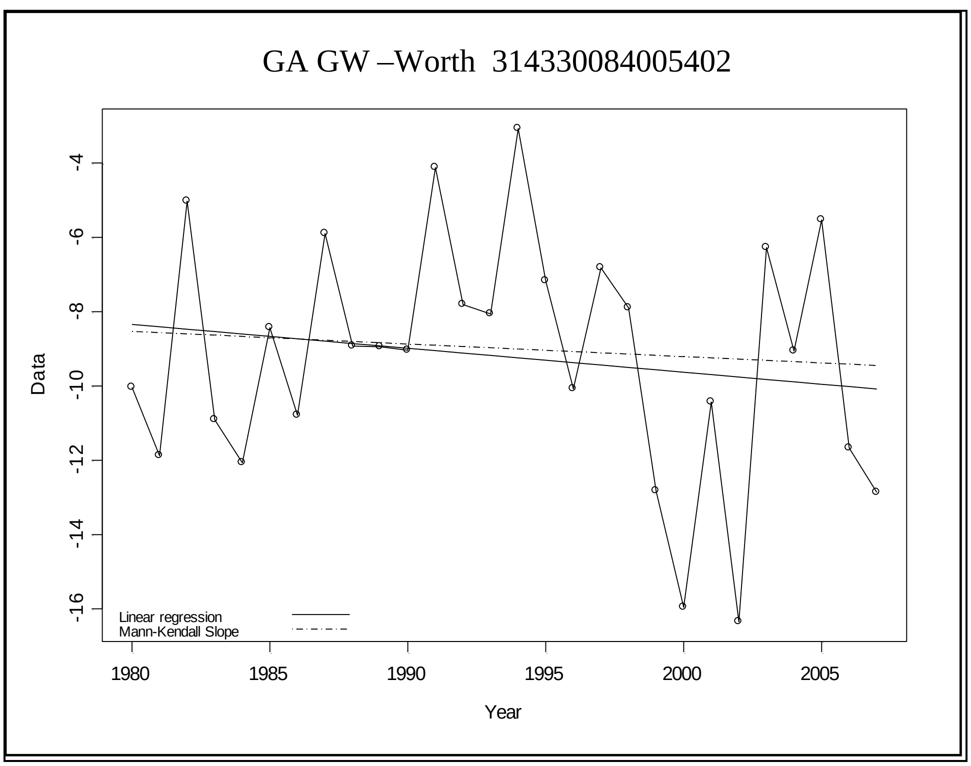


Data = annual average groundwater level in feet referenced to land surface. Negative values indicate below land surface

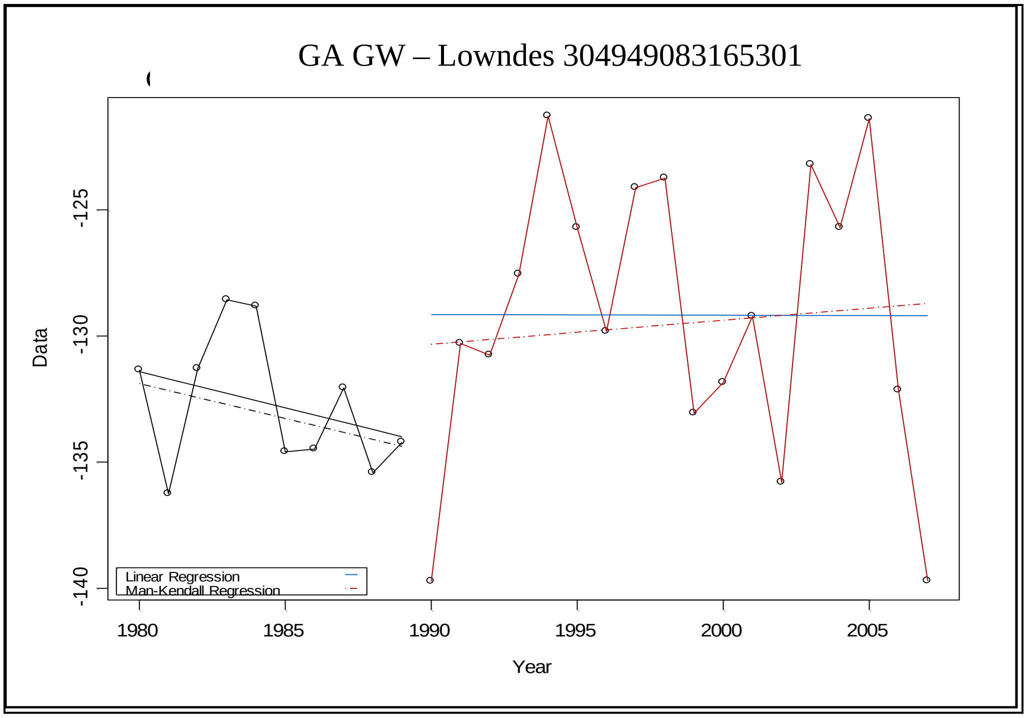




Data = annual average groundwater level in feet referenced to land surface. Negative values indicate below land surface



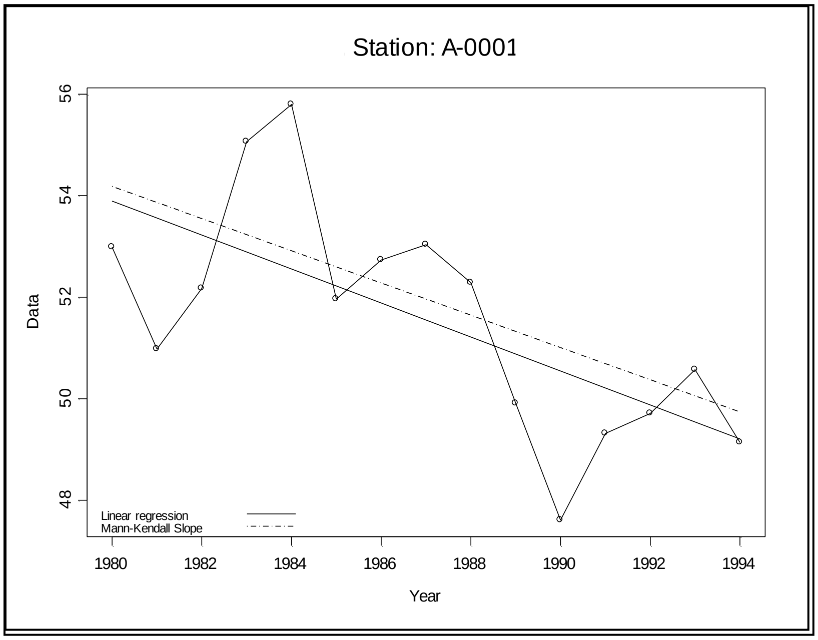
x



Data = annual average groundwater level in feet referenced to land surface. Negative values indicate below land surface

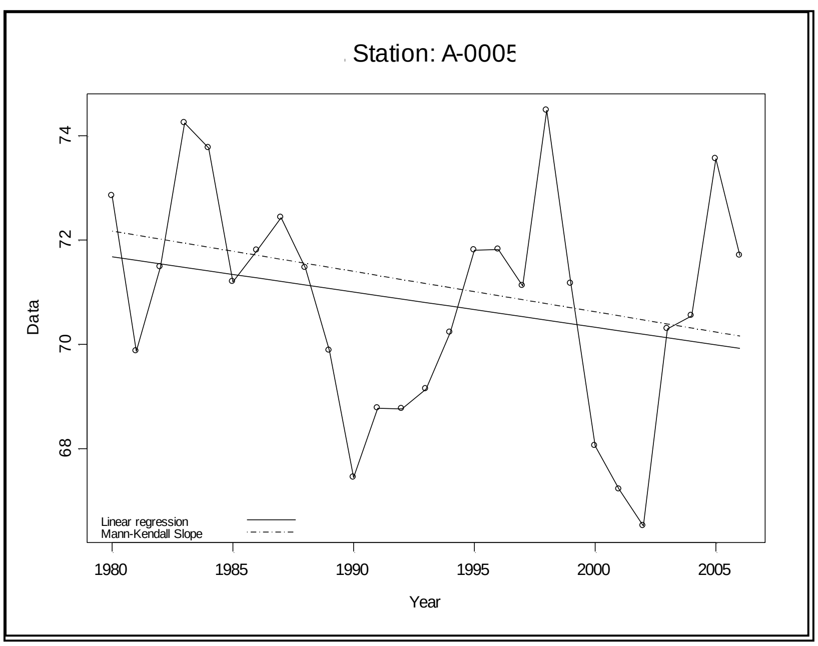
Appendix 5: SJRWMD Groundwater Level Trend

Following is a summary of the trend detection plots of SJRWMD groundwater level data. Annual average groundwater level data in feet above mean sea level were labeled as "data" (y-axes) and plotted against record year (x-axes). Map ID #s refer to Figure 3.3 in the final report.

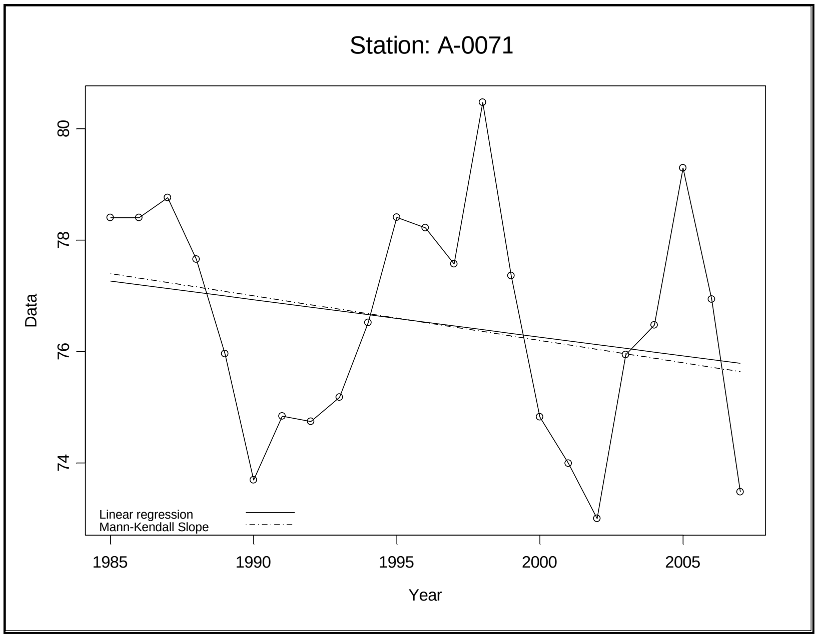


Map ID 53

Data = Annual average groundwater level in feet above mean sea level

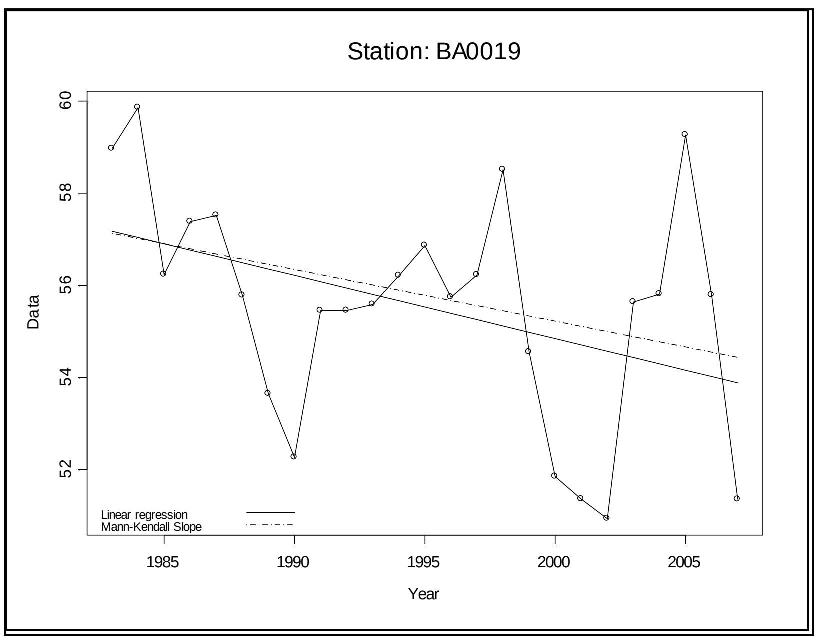


Map ID 54

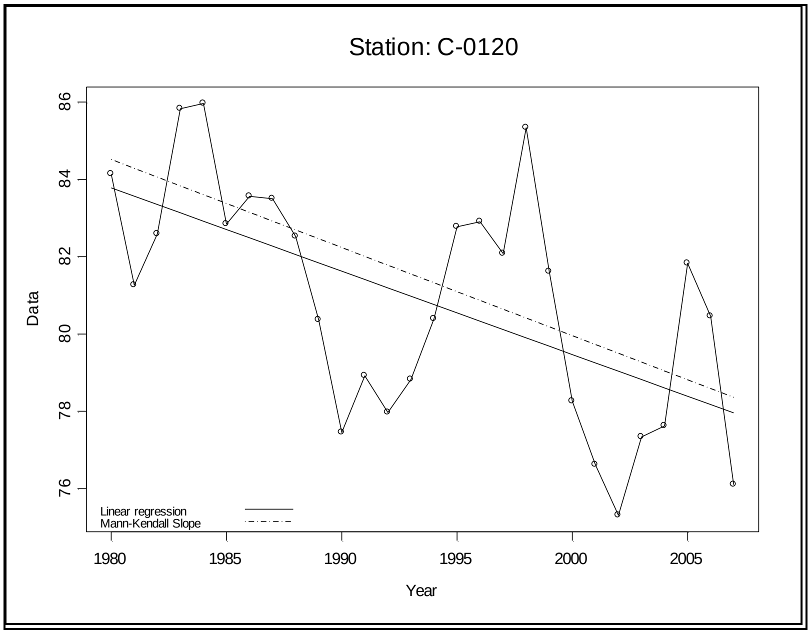


Map ID 55

Data = Annual average groundwater level in feet above mean sea level

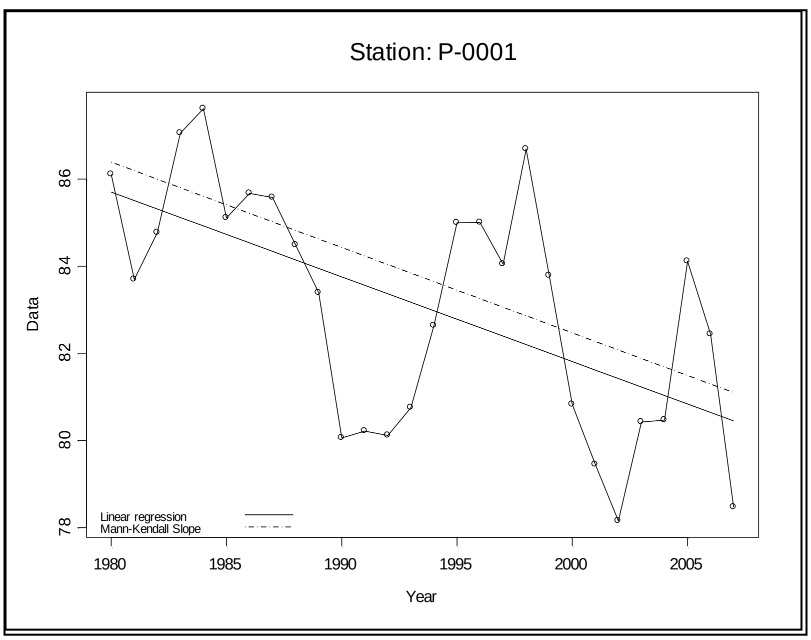


Map ID 56

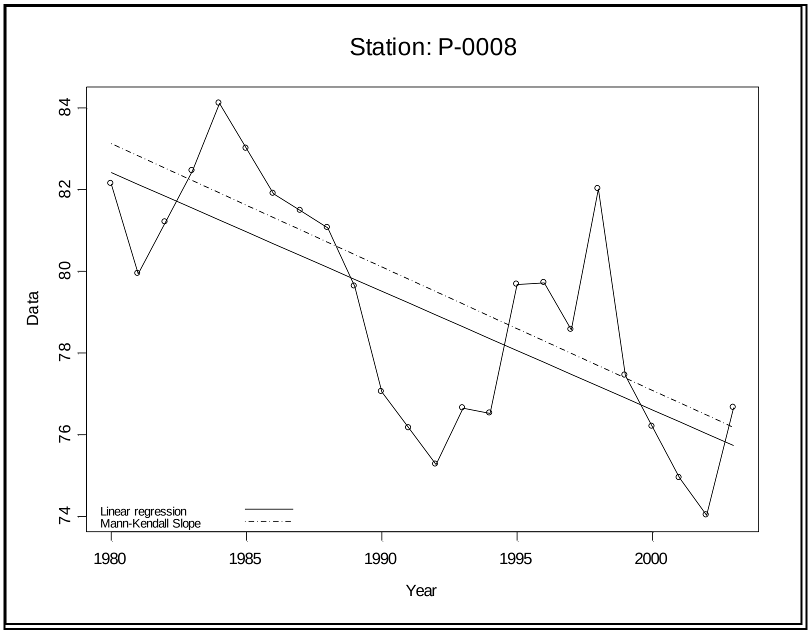


Map ID 57

Data = Annual average groundwater level in feet above mean sea level

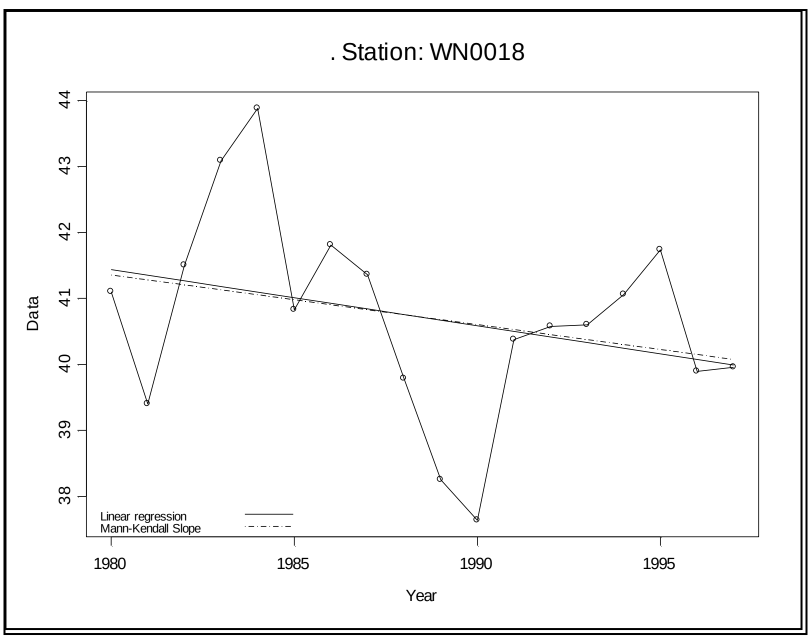


Map ID 58

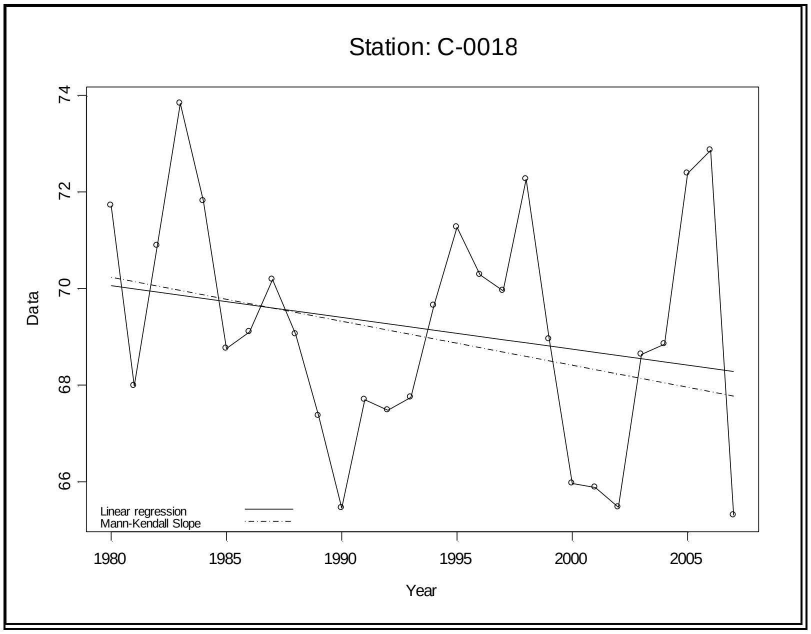


Map ID 59

Data = Annual average groundwater level in feet above mean sea level

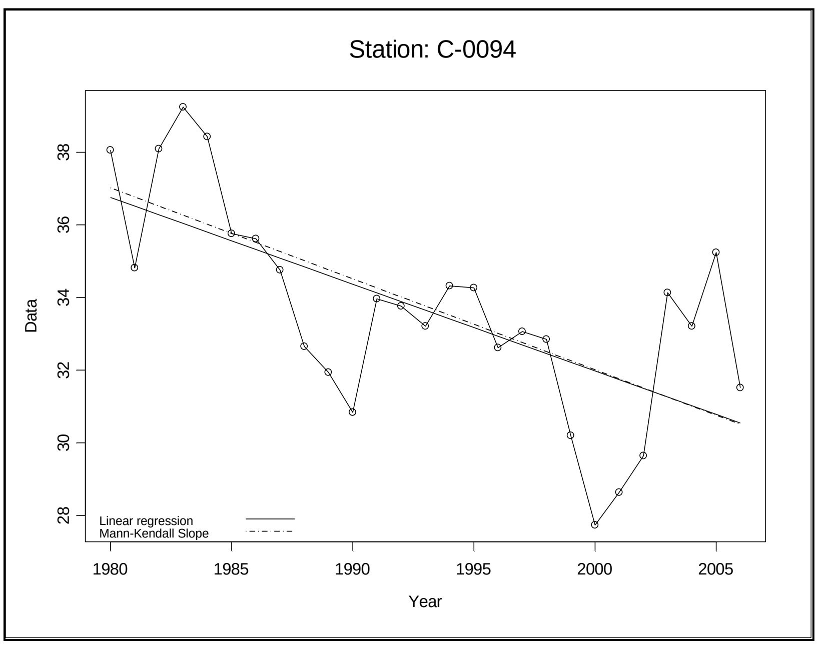


Map ID 61

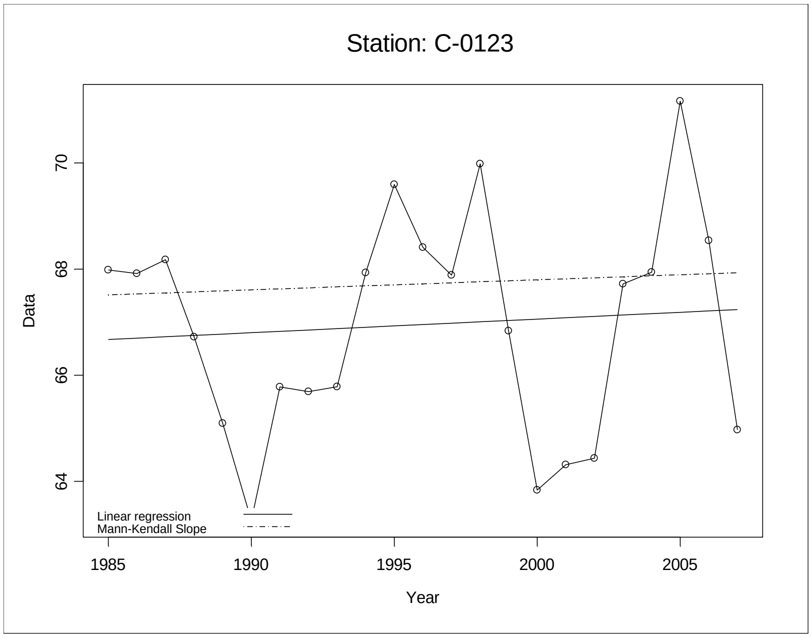


Map ID 62

Data = Annual average groundwater level in feet above mean sea level

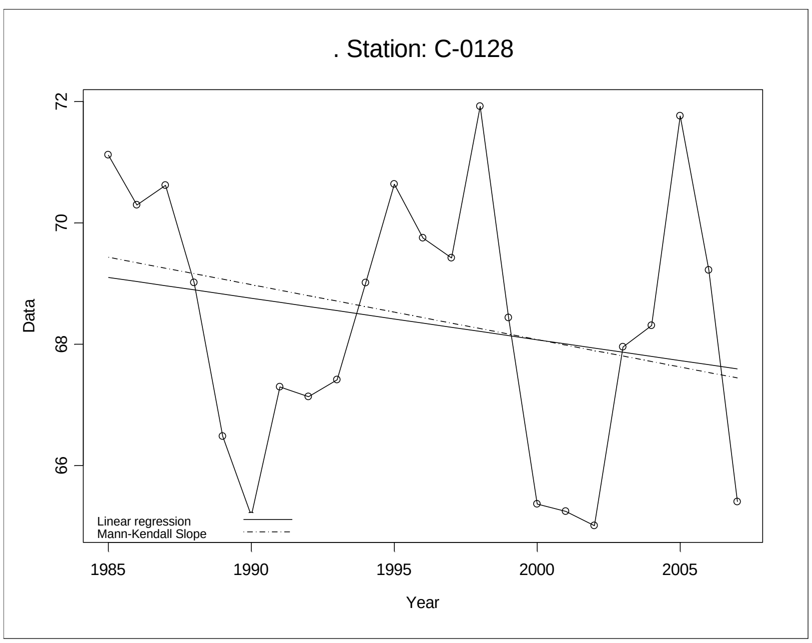


Map ID 63

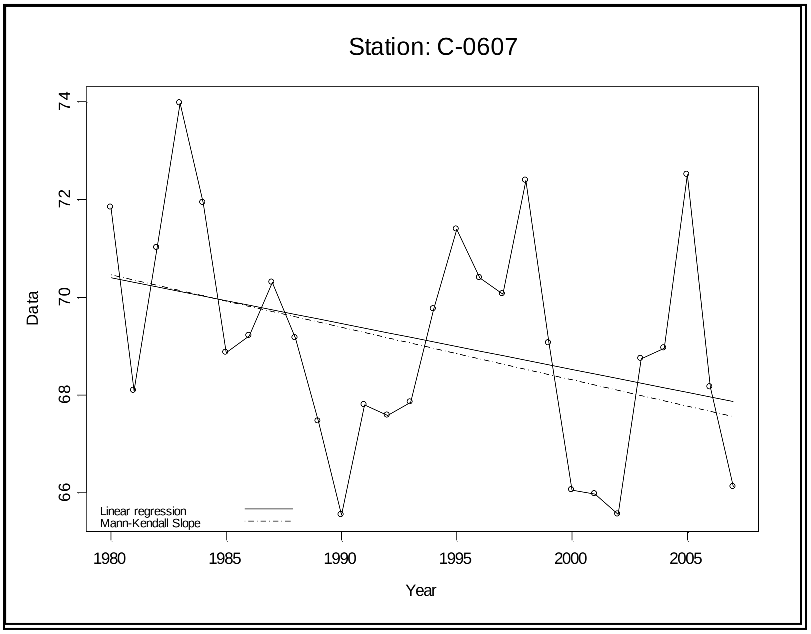


Map ID 64

Data = Annual average groundwater level in feet above mean sea level



Map ID 65



Map ID 66

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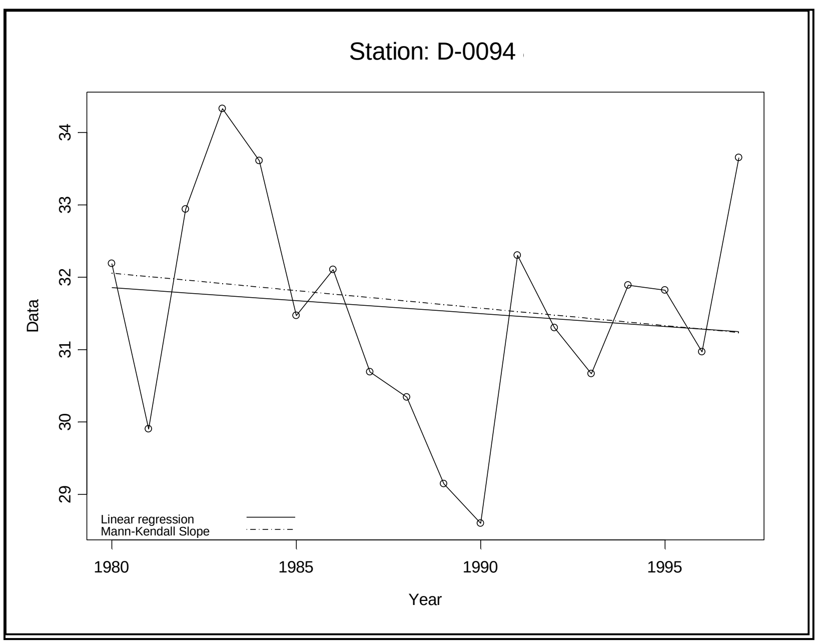

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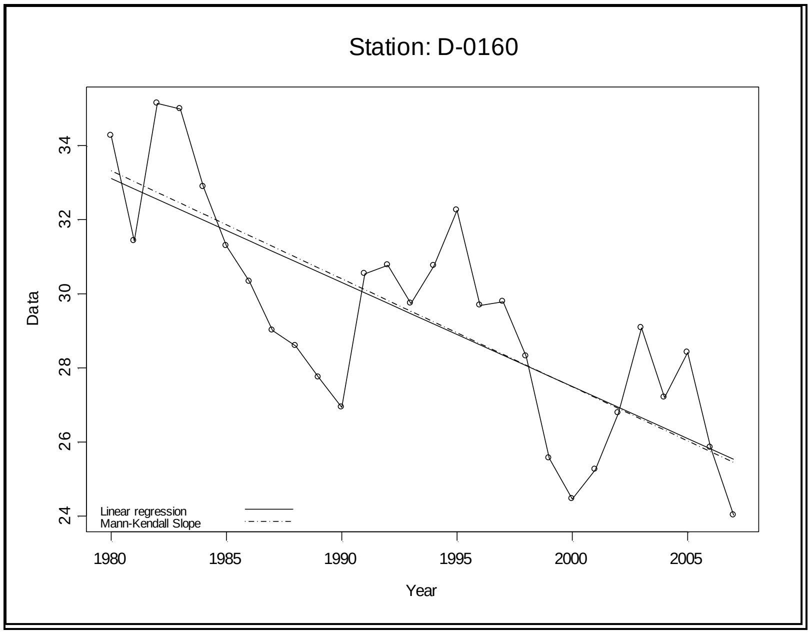

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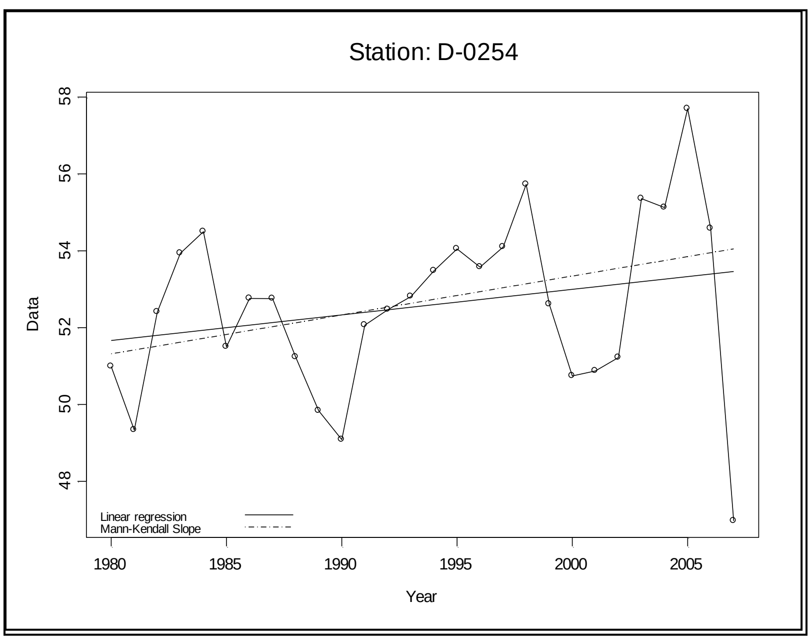
Data = Annual average groundwater level in feet above mean sea level



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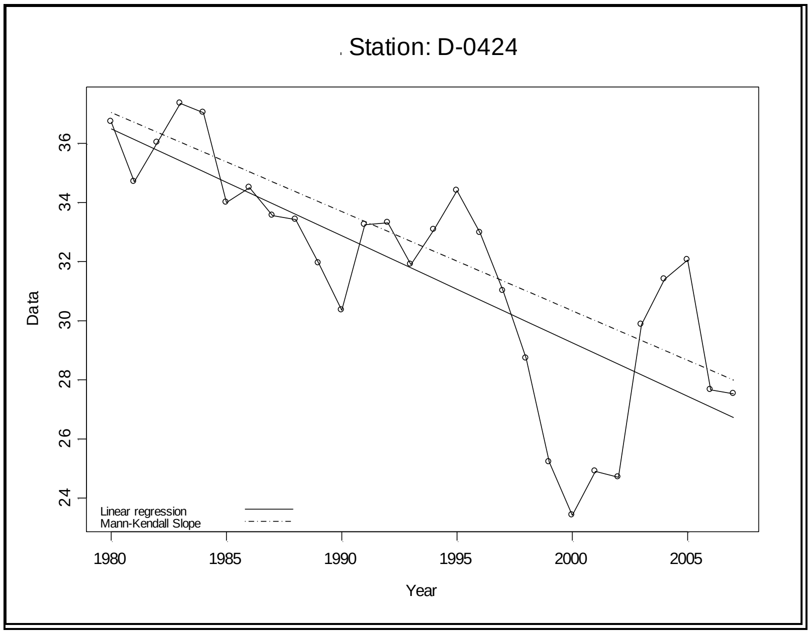
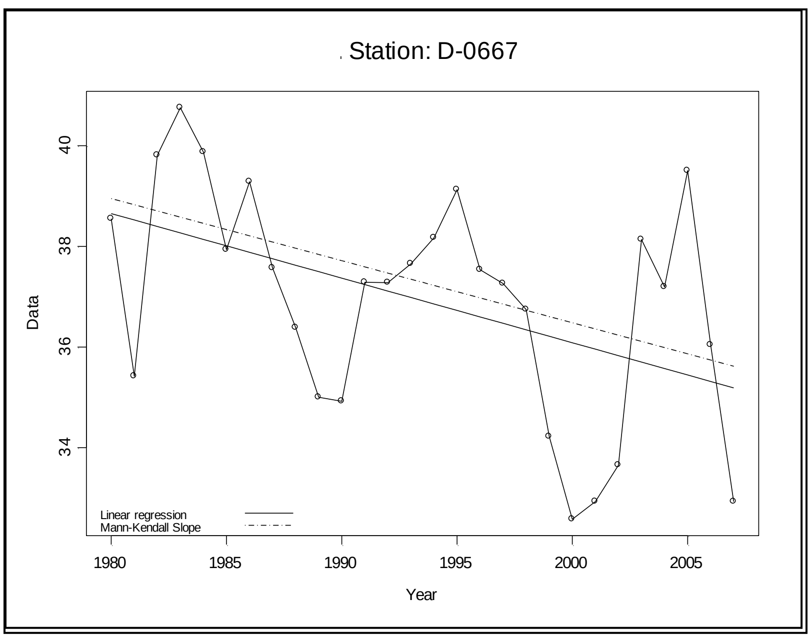


Map ID 70

Data = Annual average groundwater level in feet above mean sea level



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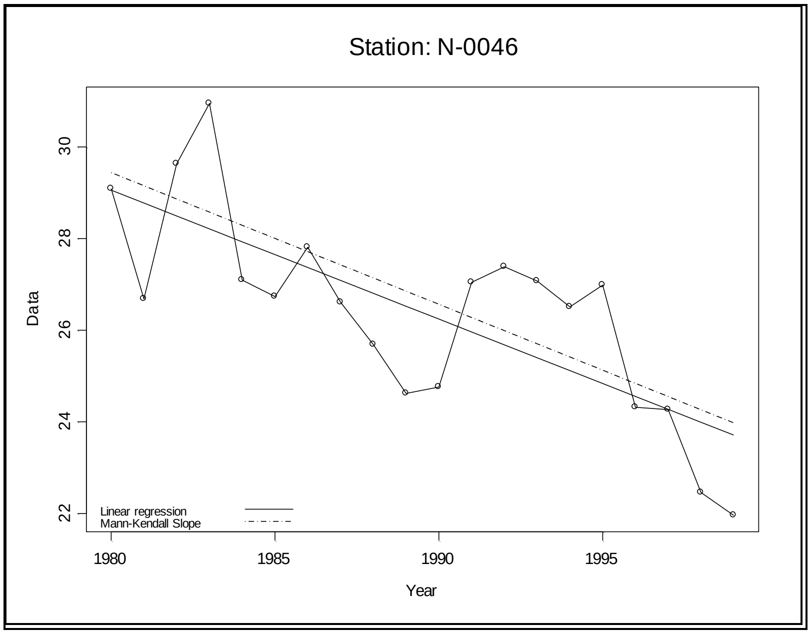

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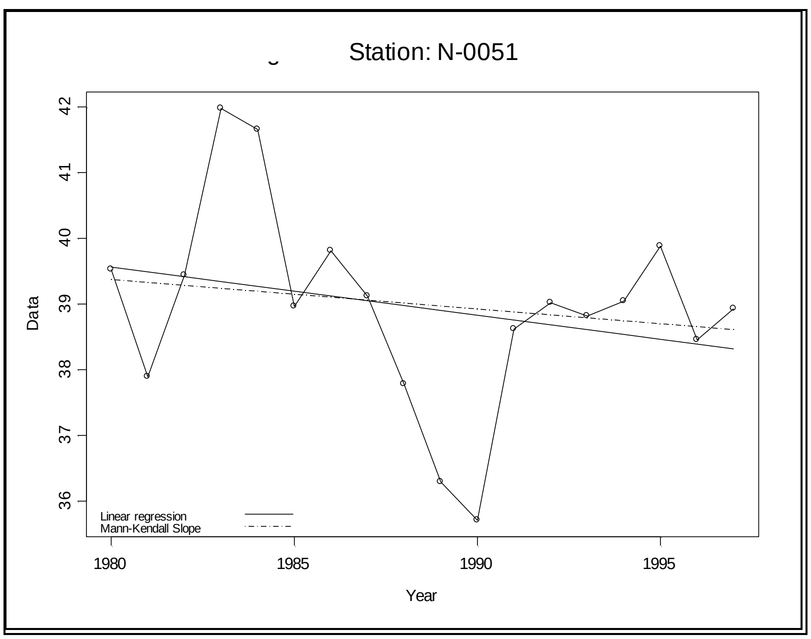

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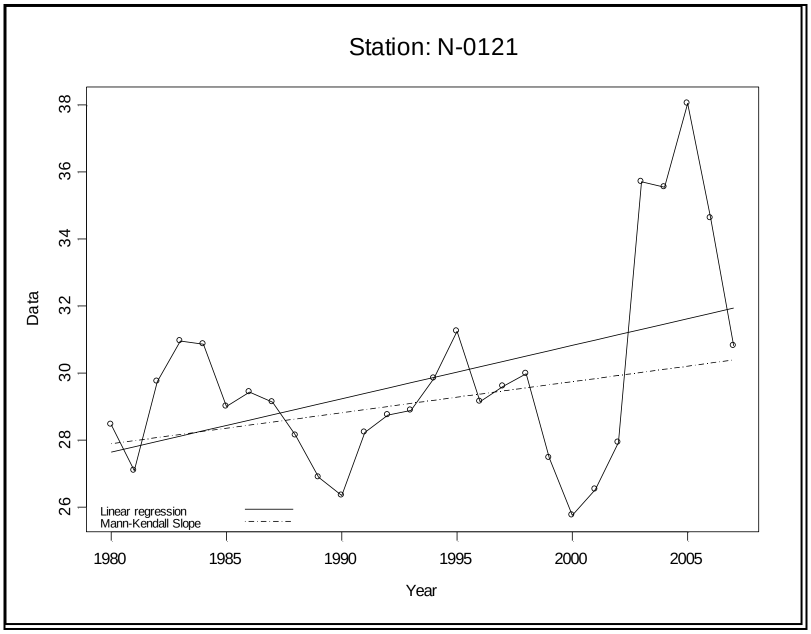

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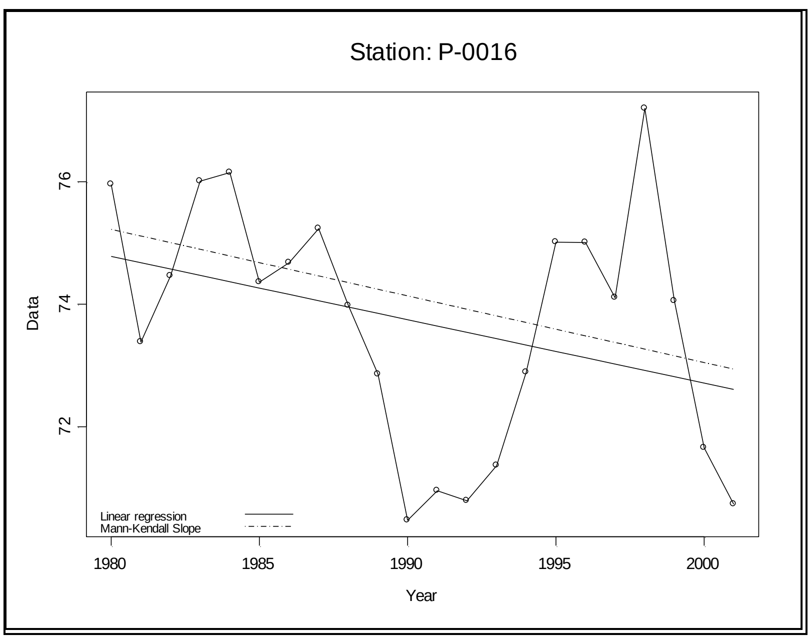

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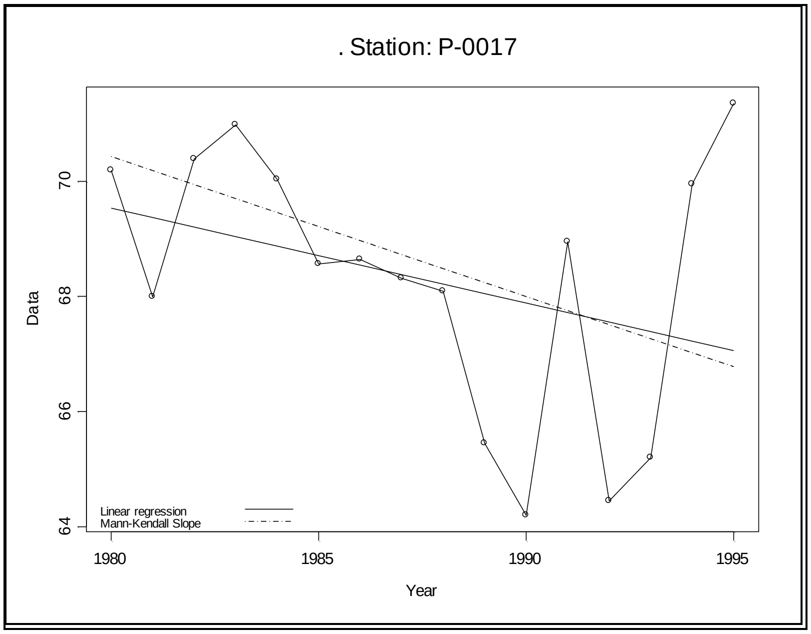

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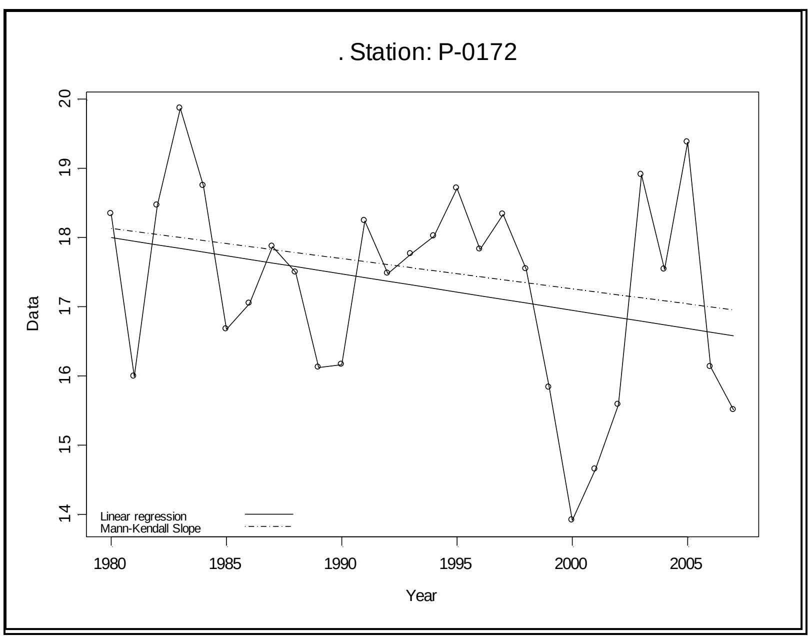

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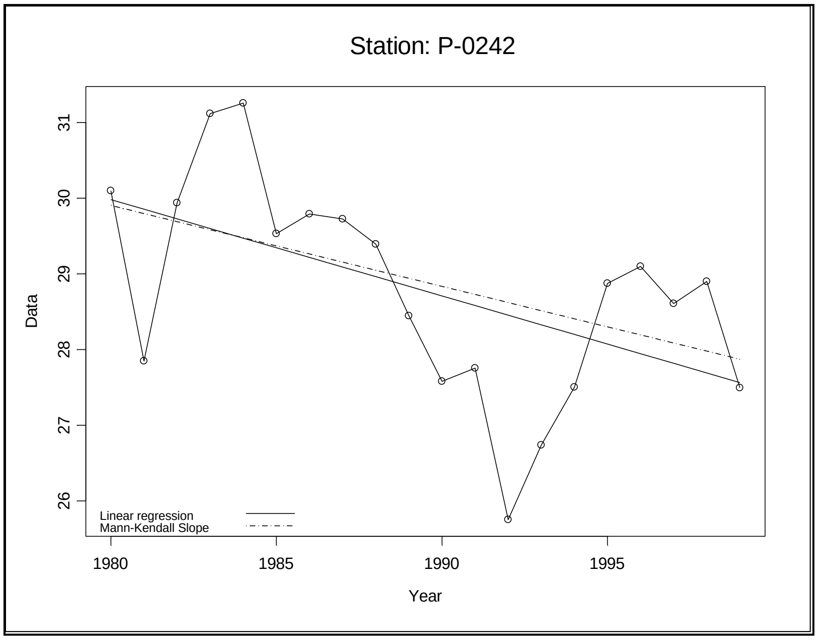

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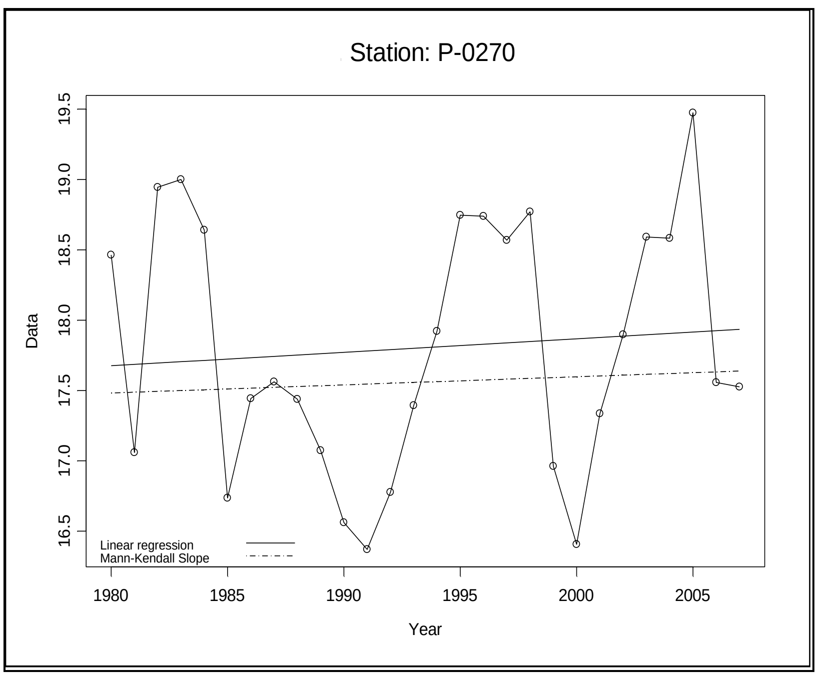
Data = Annual average groundwater level in feet above mean sea level



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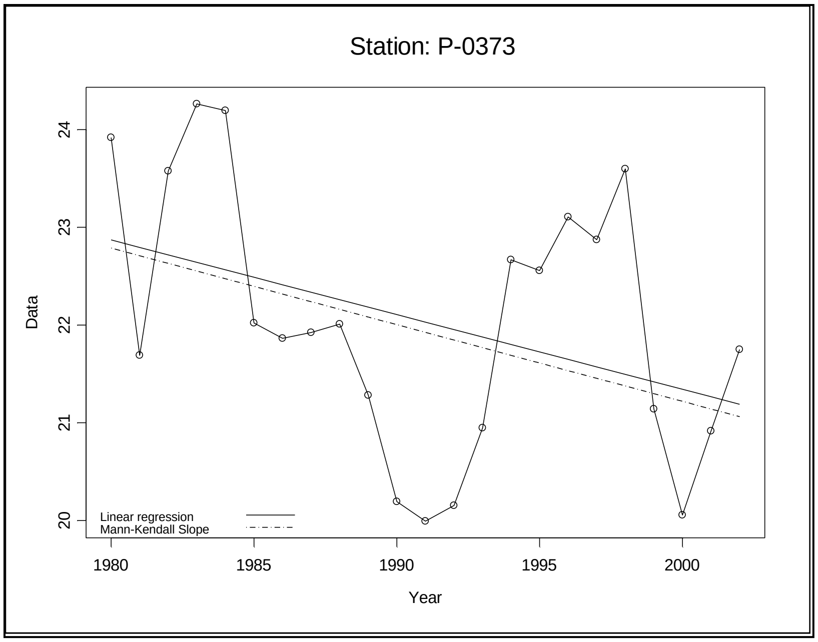

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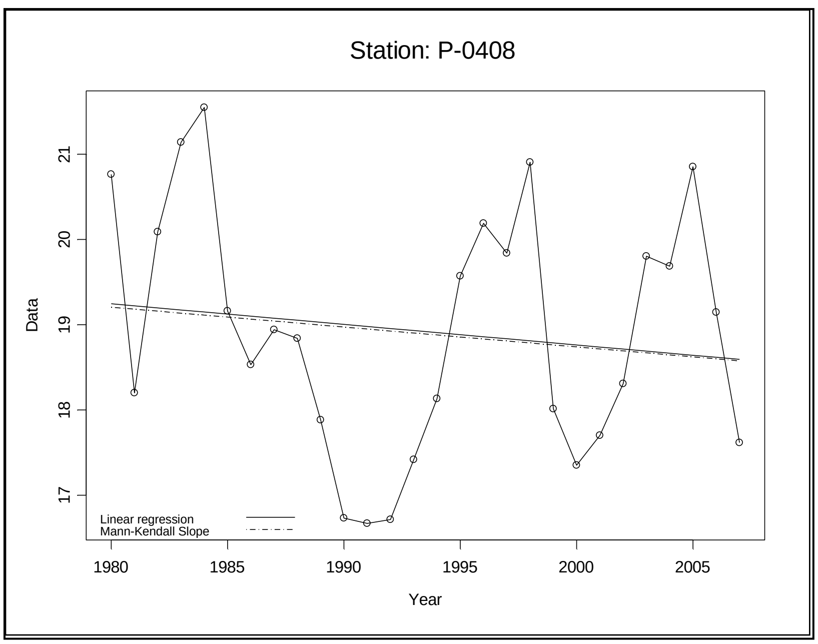
Data = Annual average groundwater level in feet above mean sea level



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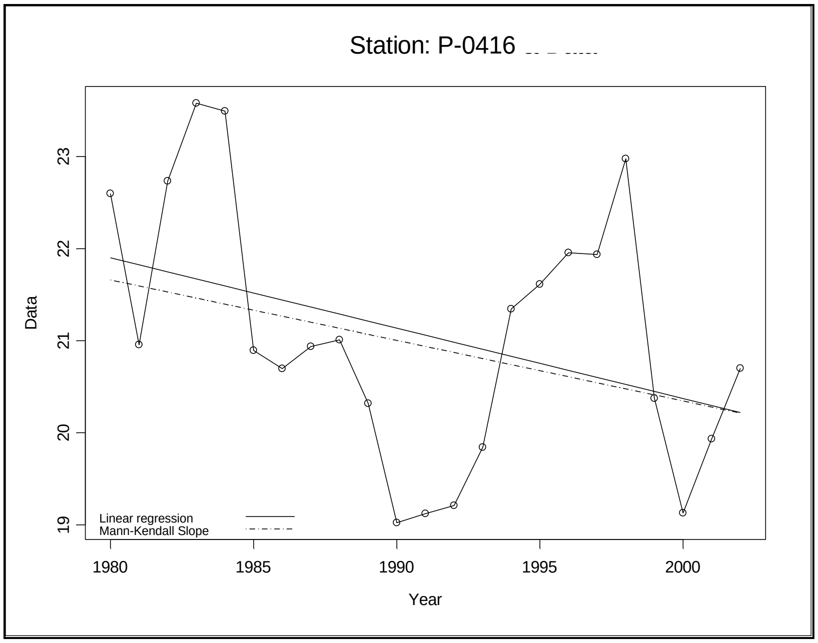
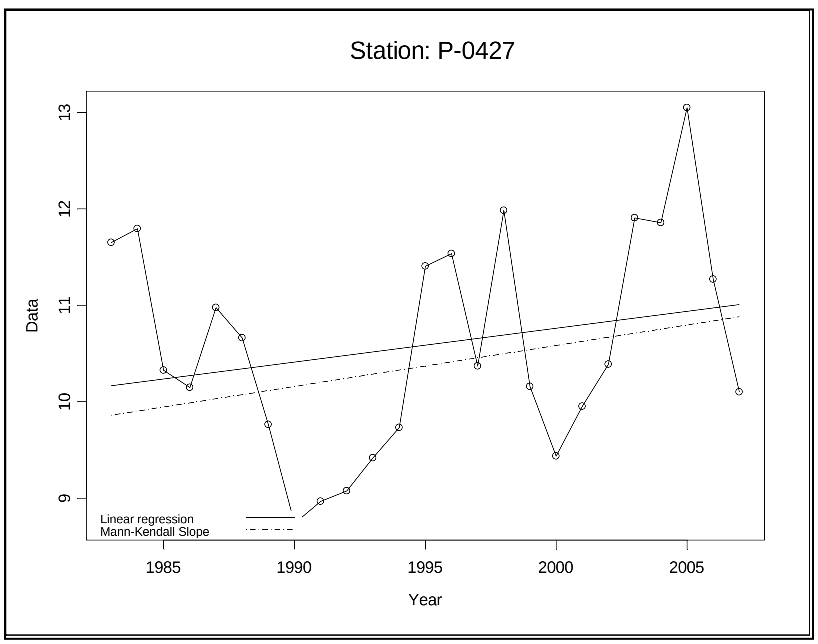


Map ID 82

Data = Annual average groundwater level in feet above mean sea level



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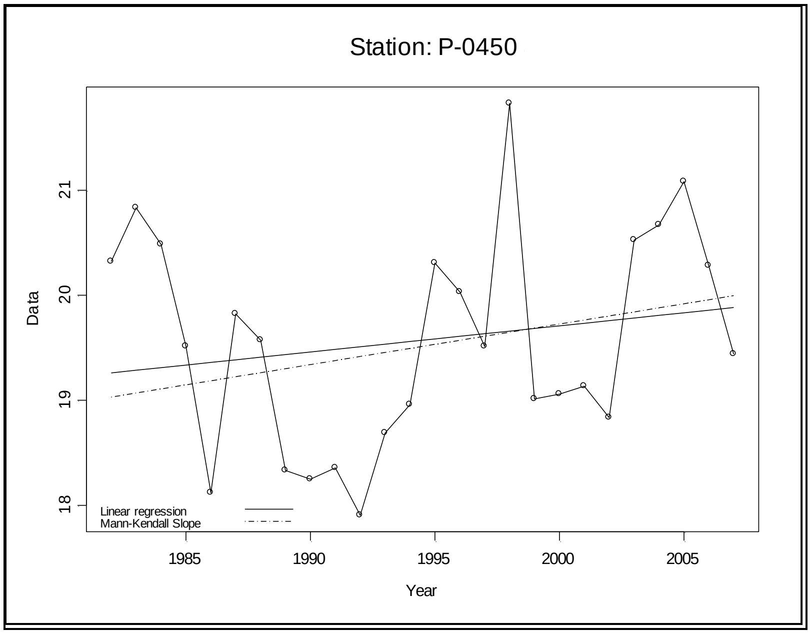
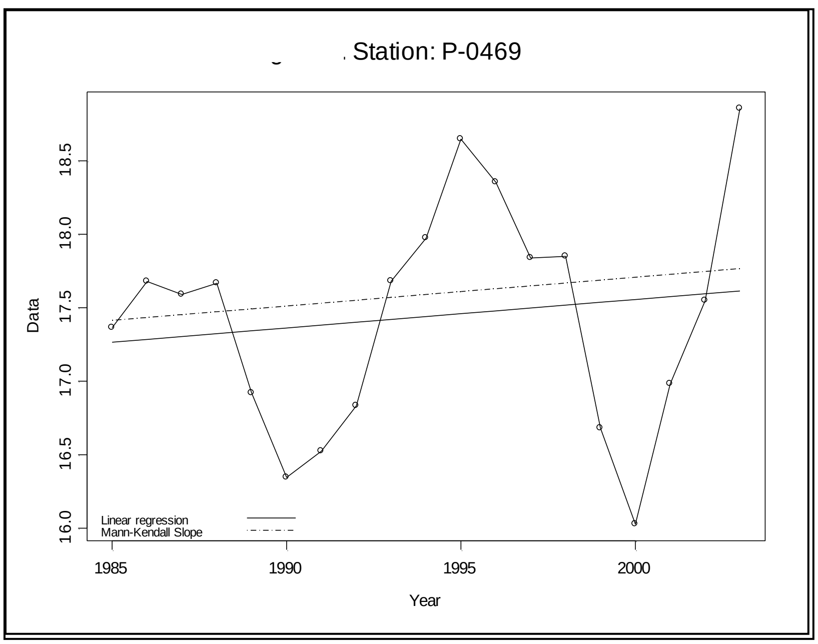
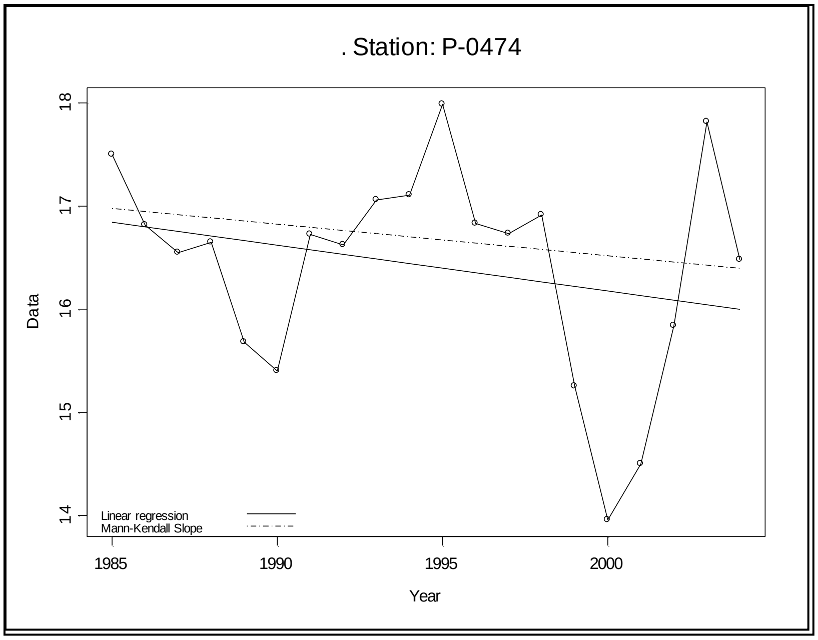


Map ID 84

Data = Annual average groundwater level in feet above mean sea level

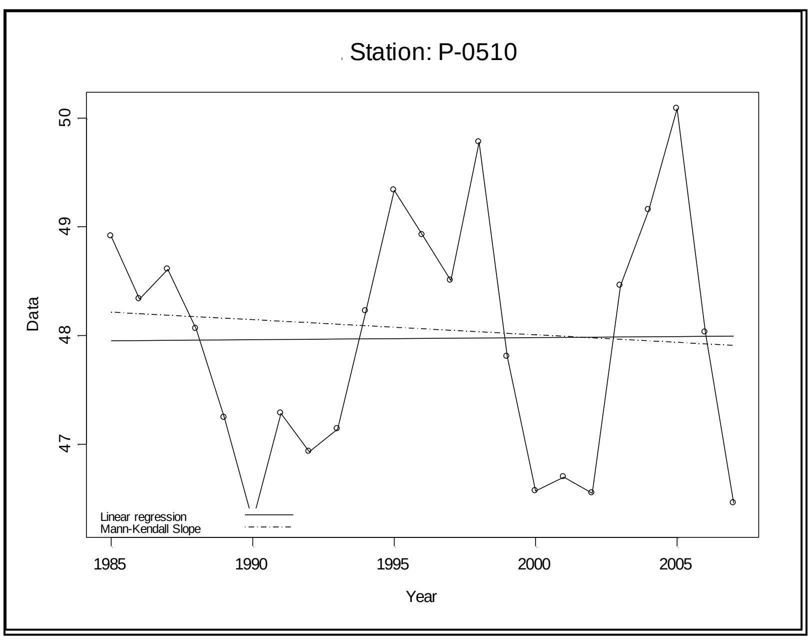


Map ID 85

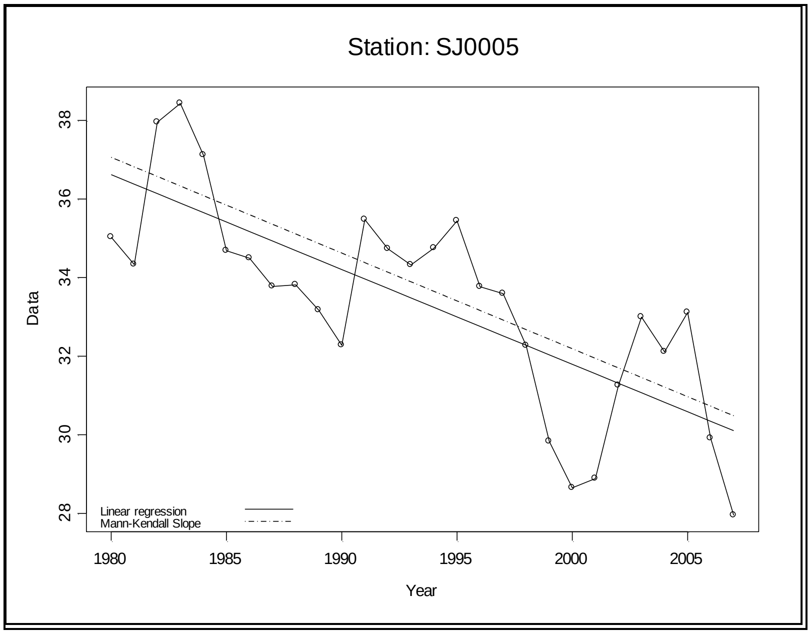


Map ID 86

Data = Annual average groundwater level in feet above mean sea level

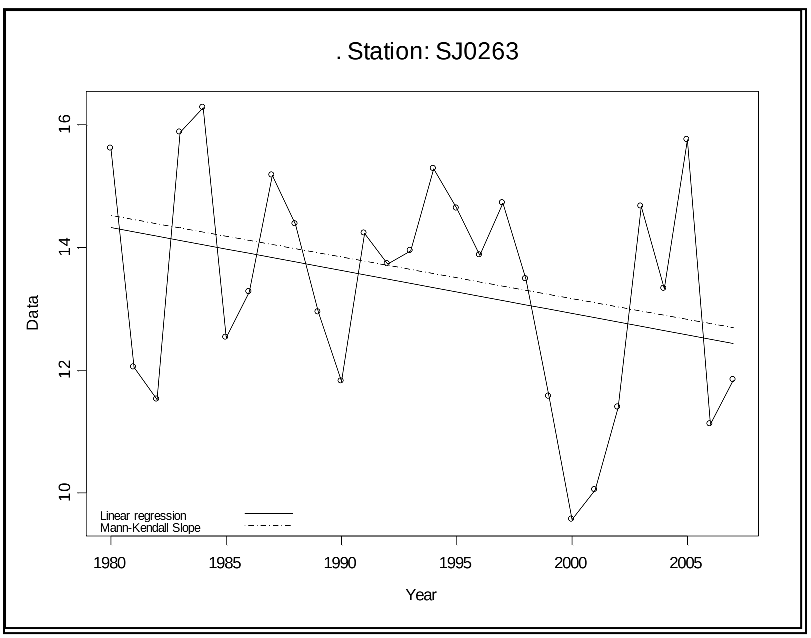


Map ID 87

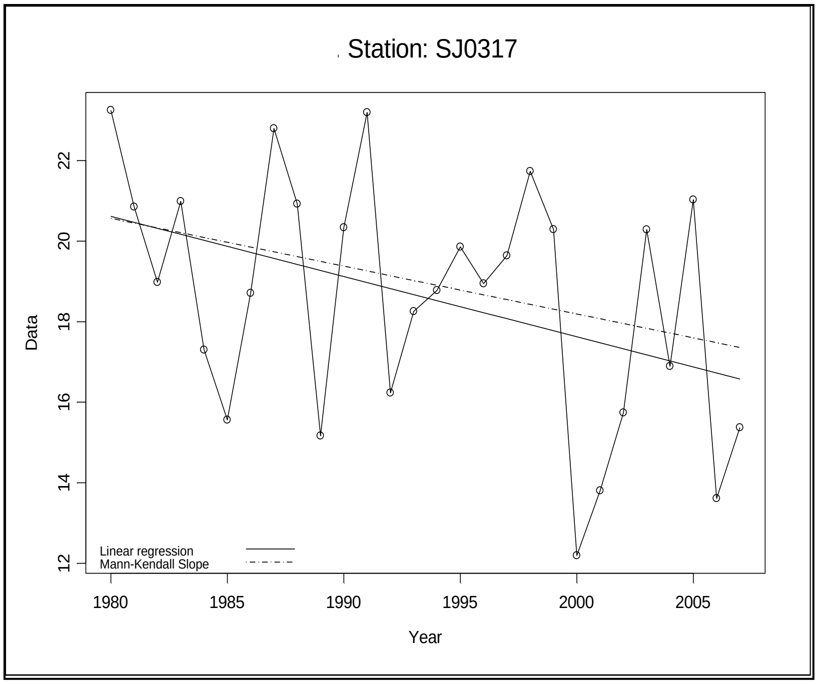


Map ID 88

Data = Annual average groundwater level in feet above mean sea level

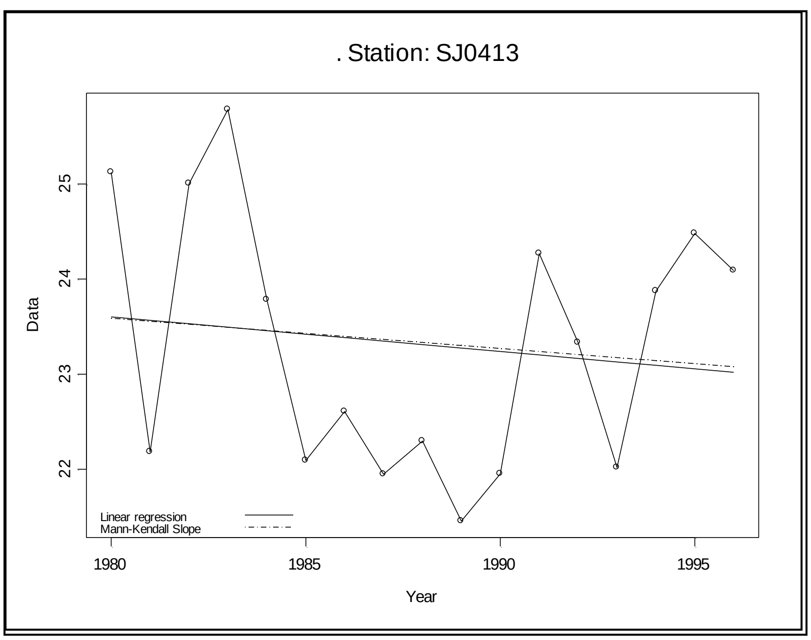


Map ID 89

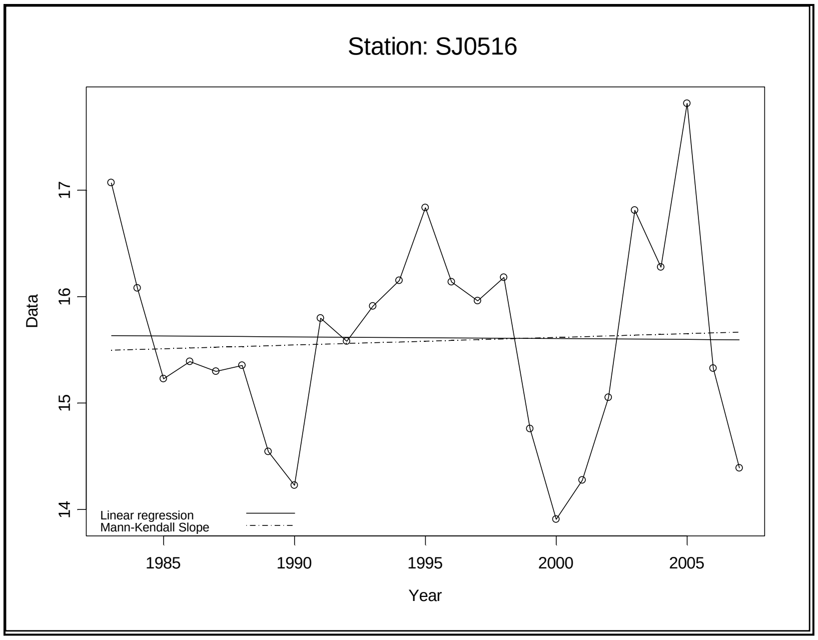


Map ID 90

Data = Annual average groundwater level in feet above mean sea level

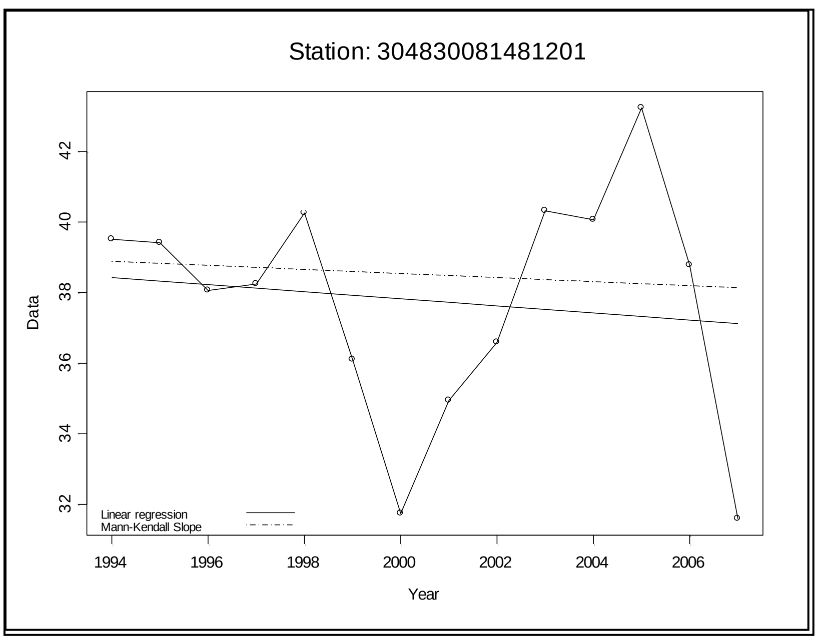


Map ID 91



Map ID 92

Data = Annual average groundwater level in feet above mean sea level



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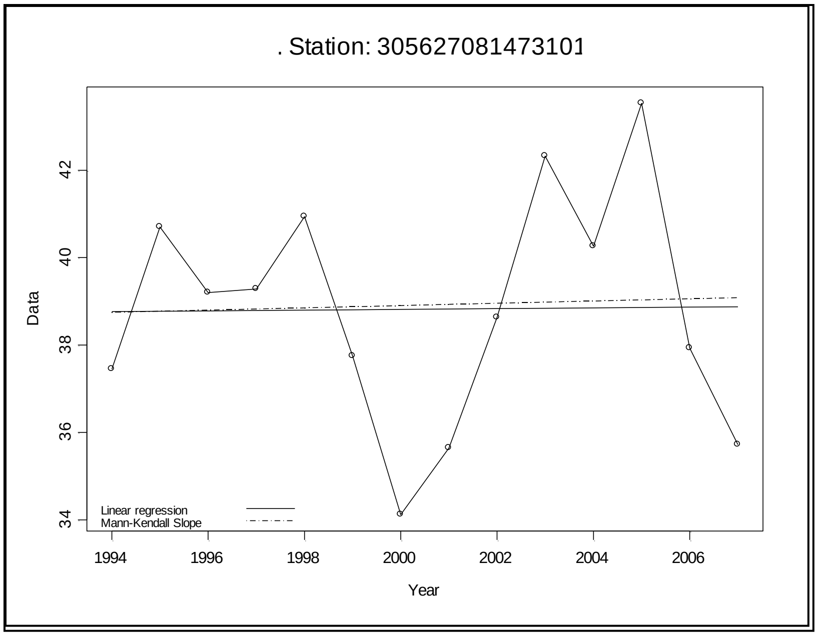

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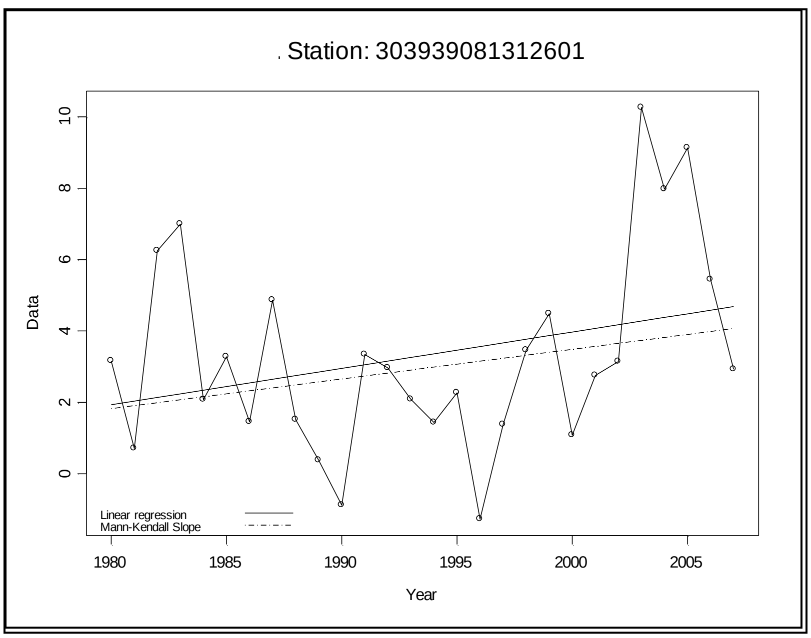

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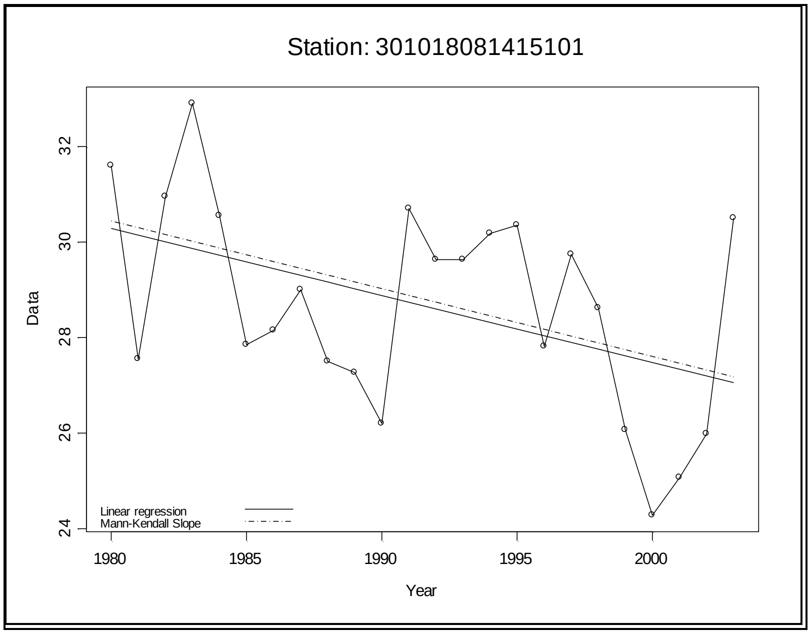
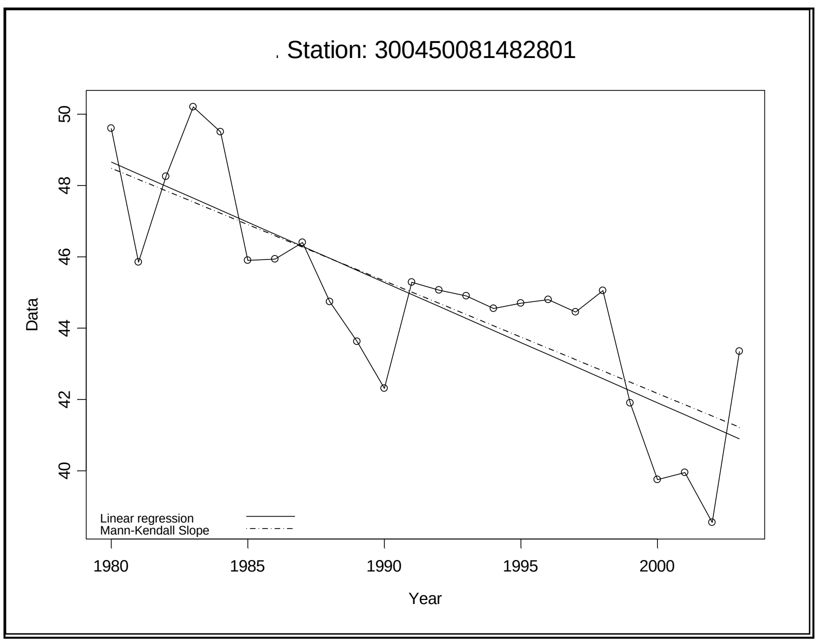


Map ID 103

Data = Annual average groundwater level in feet above mean sea level



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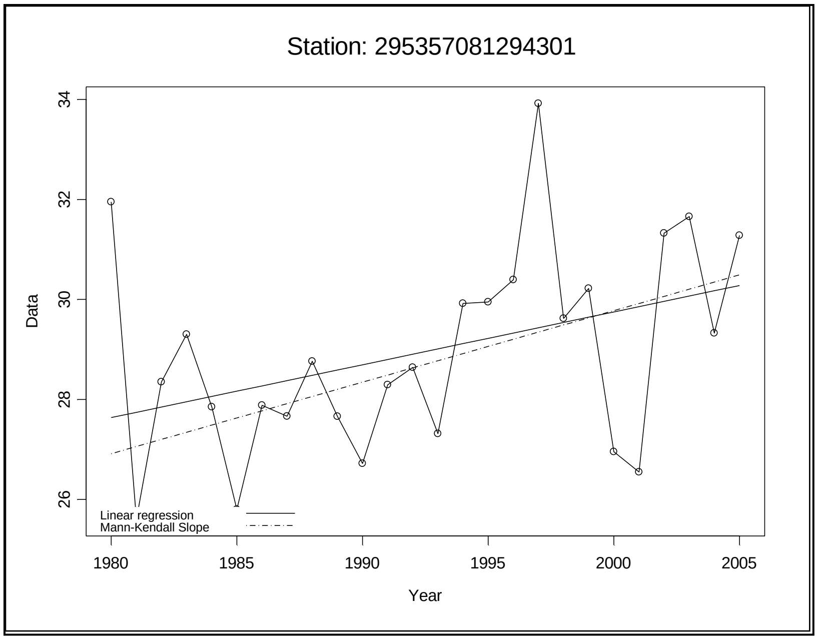
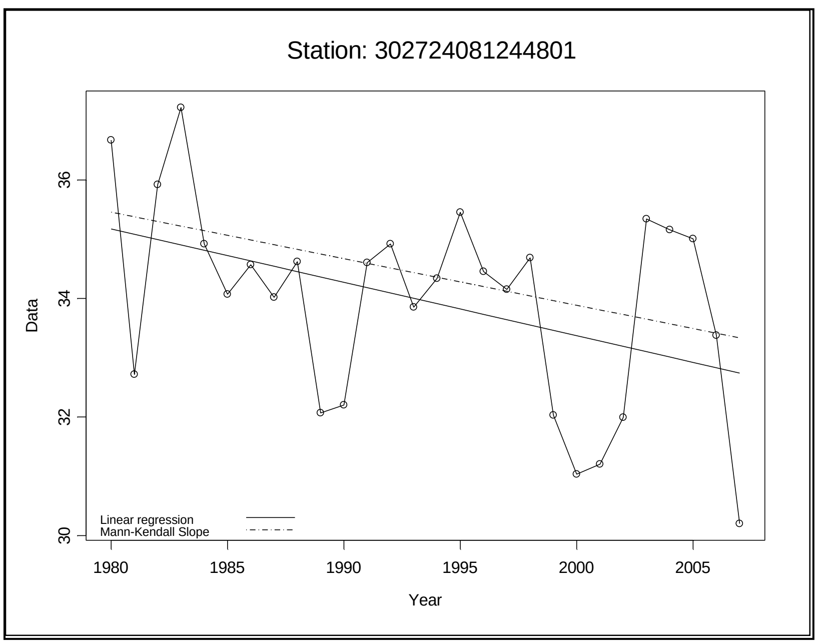


Map ID 105

Data = Annual average groundwater level in feet above mean sea level



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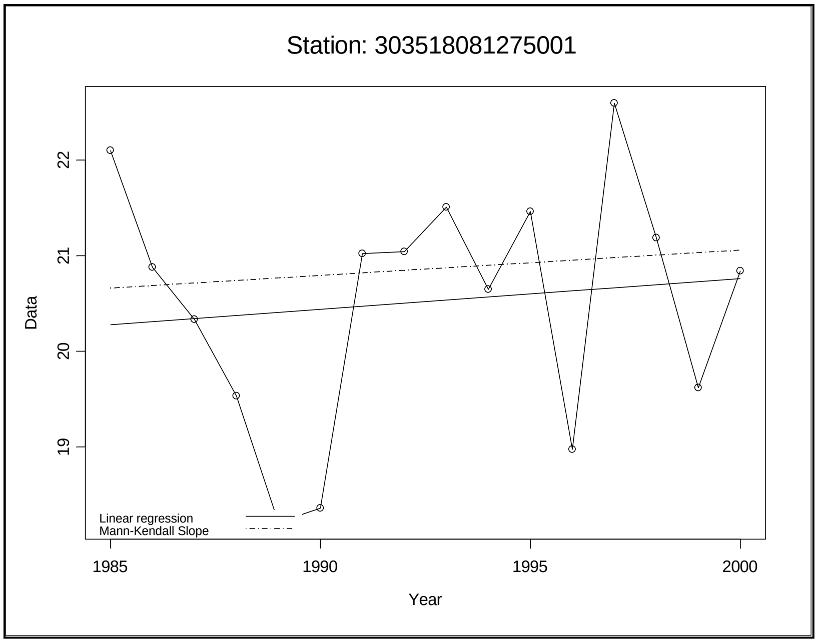

Map ID 107

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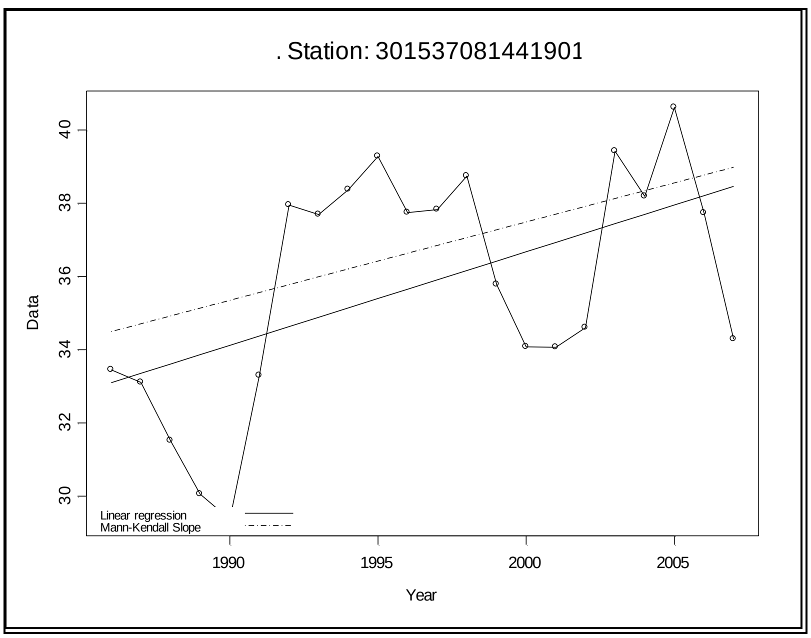

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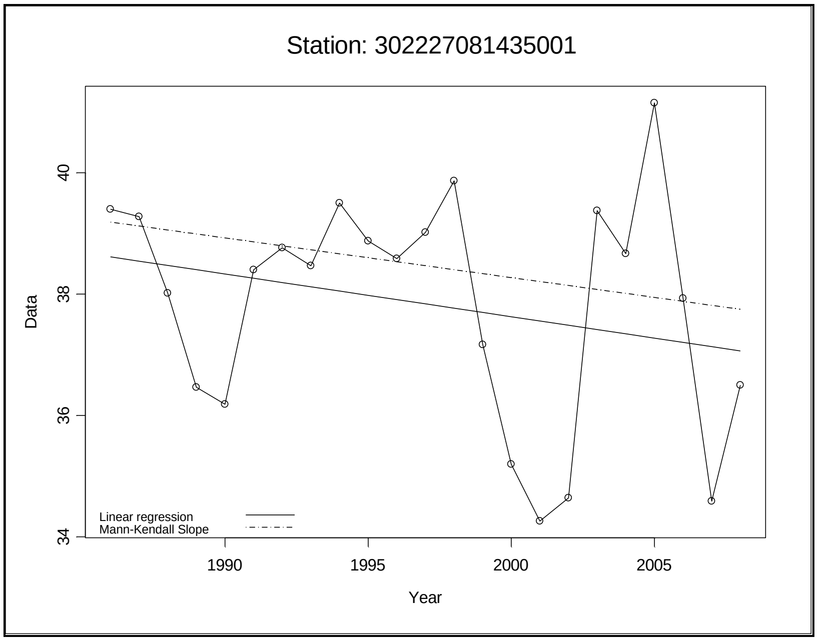

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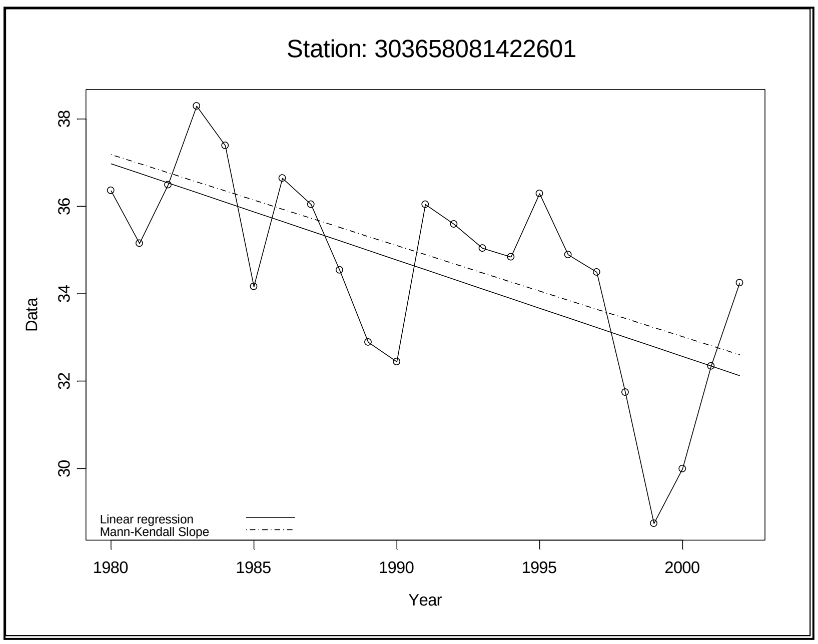

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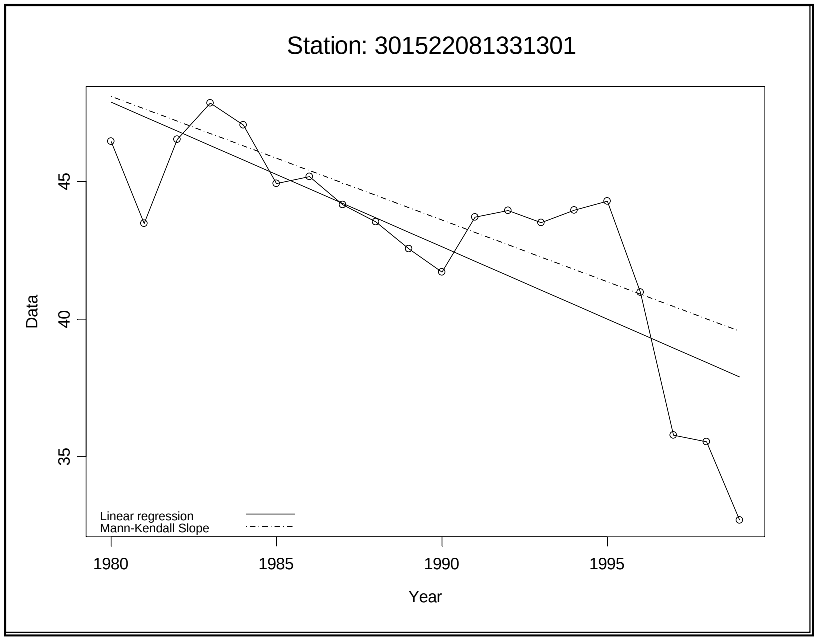

Map ID 111

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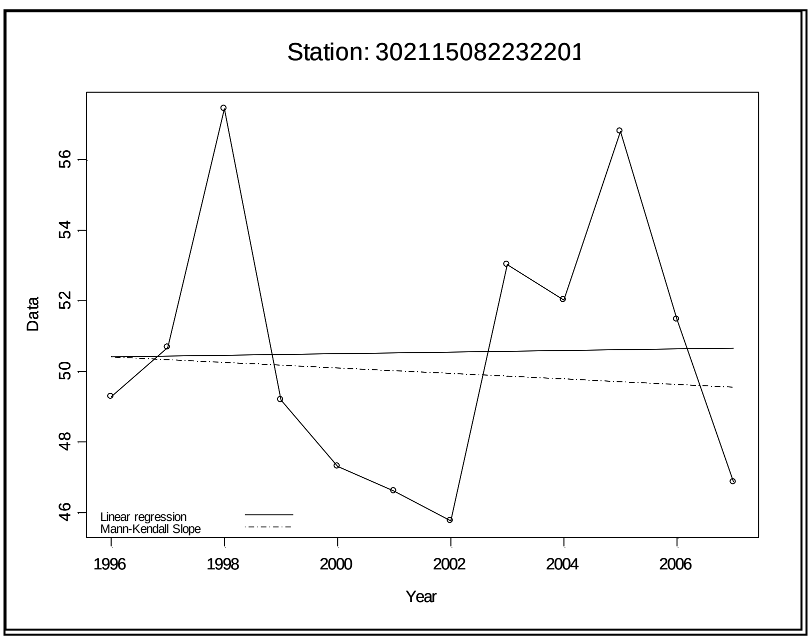
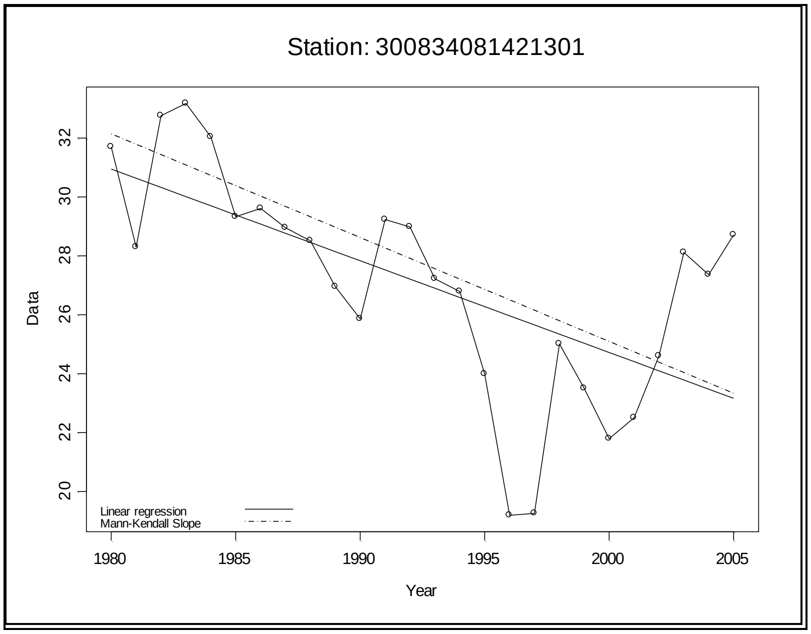
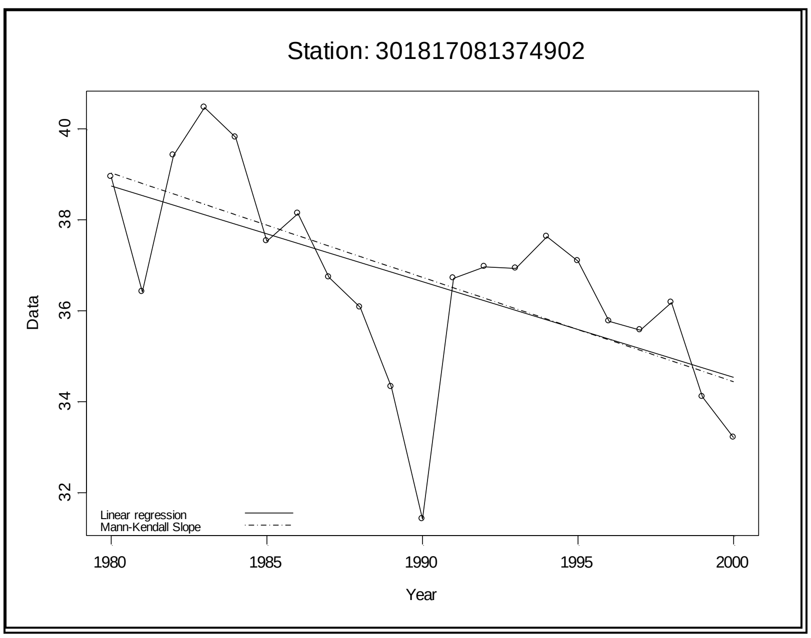


Map ID 112



Map ID 113

Data = Annual average groundwater level in feet above mean sea level



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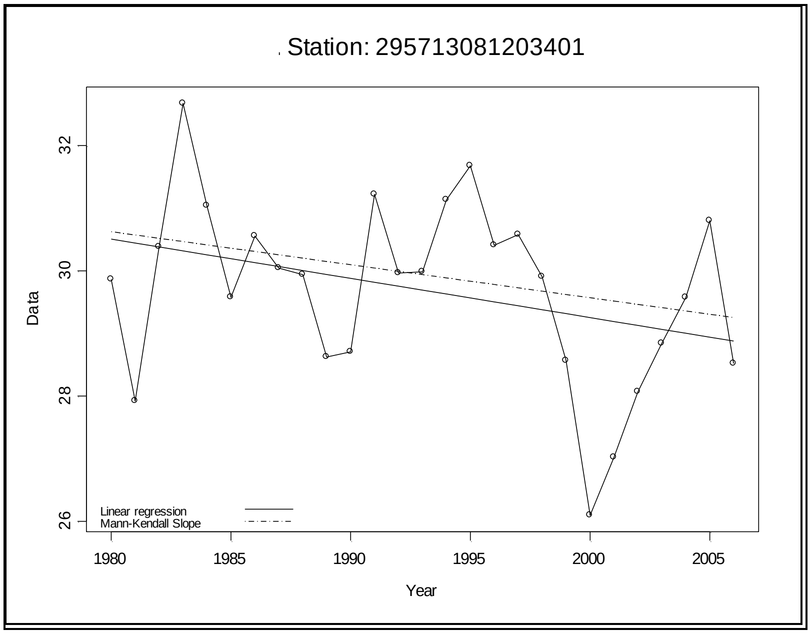
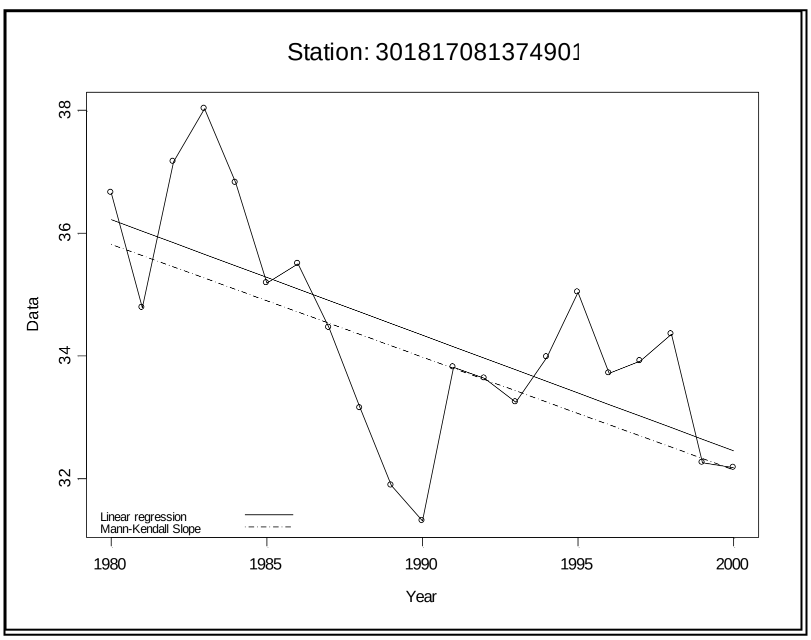
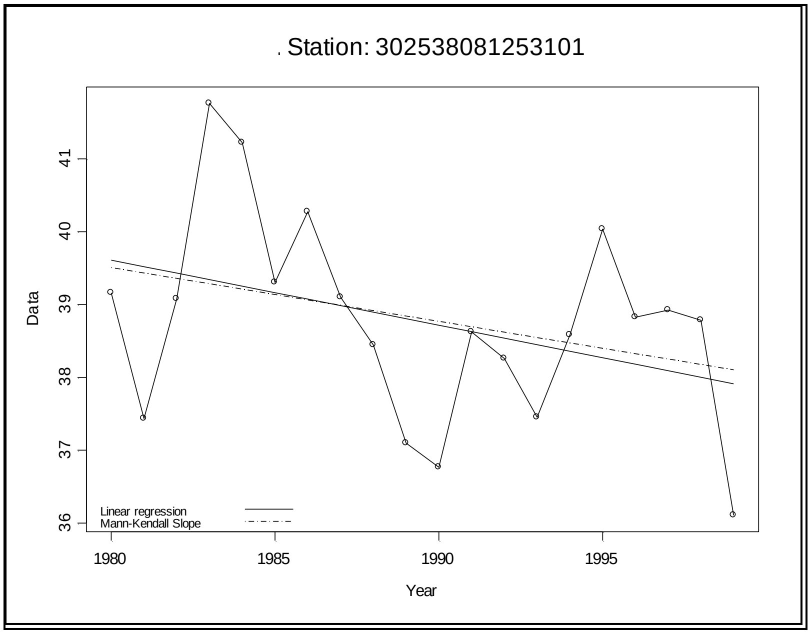


Map ID 115

Data = Annual average groundwater level in feet above mean sea level



Map ID 116



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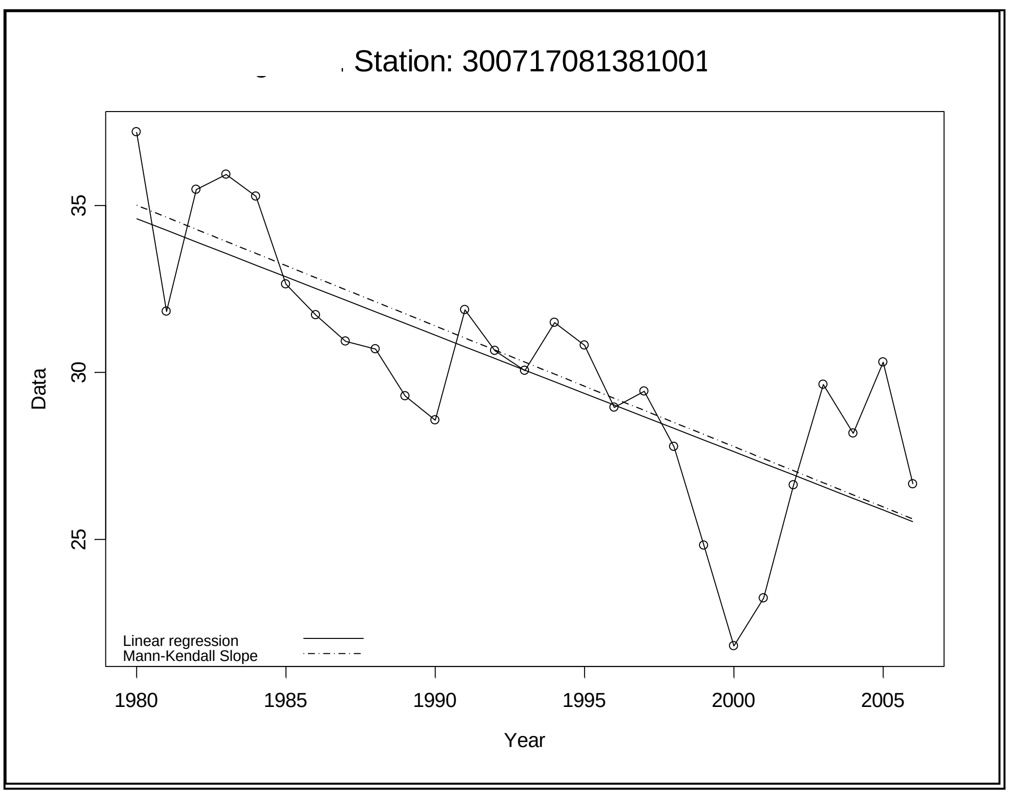
Data = Annual average groundwater level in feet above mean sea level



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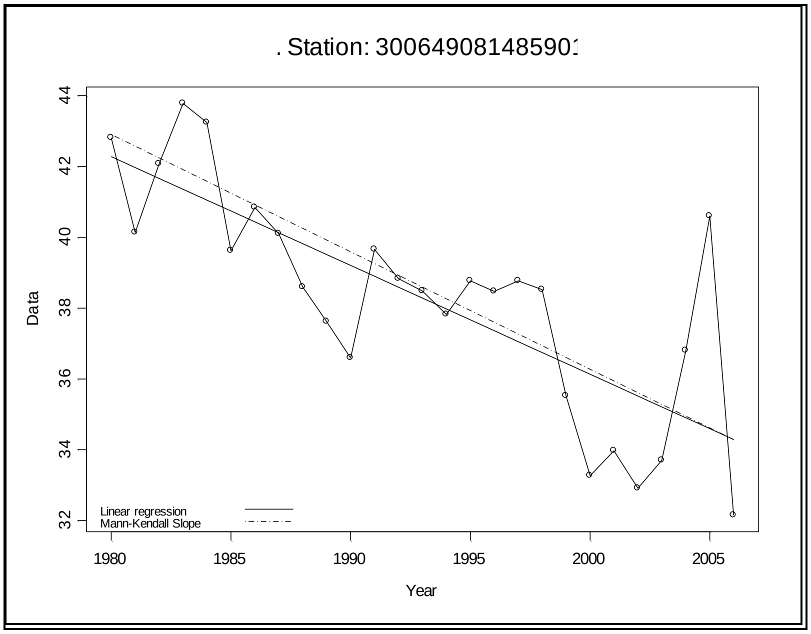

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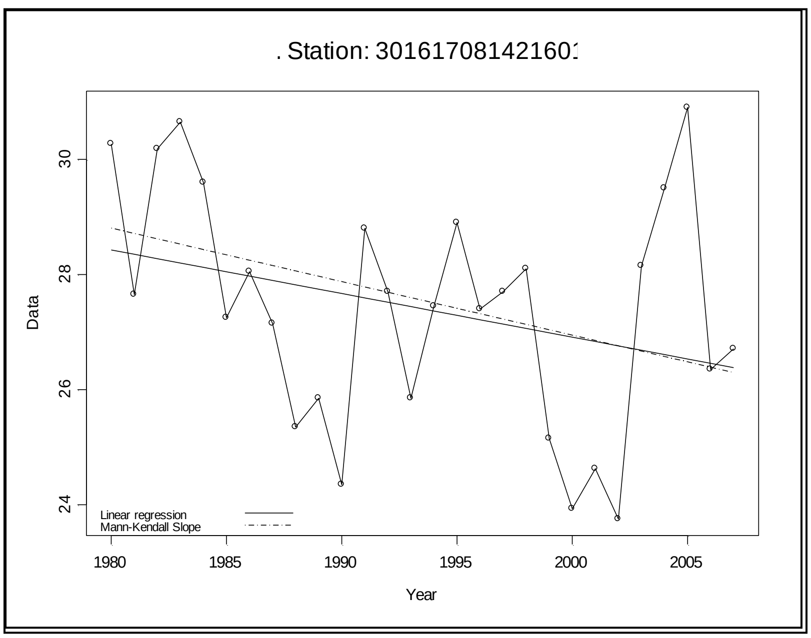
Data = Annual average groundwater level in feet above mean sea level



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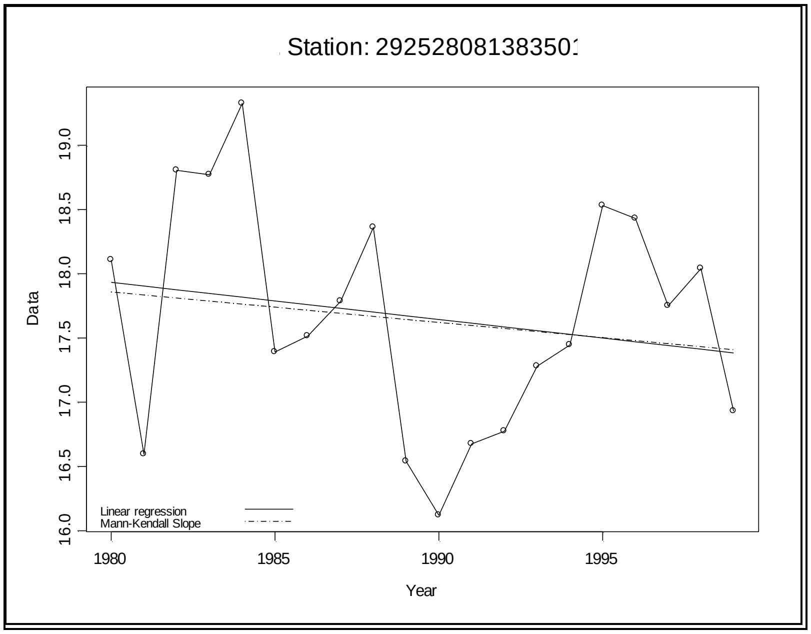
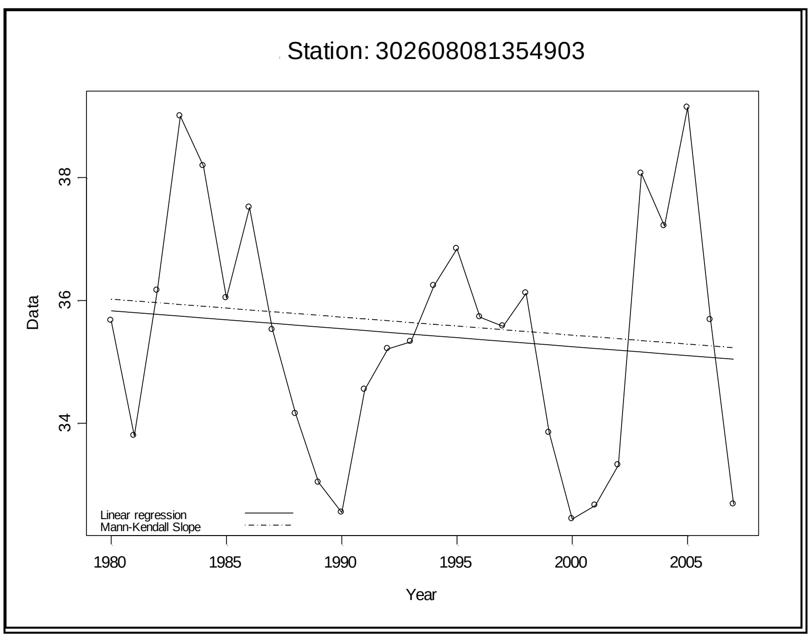


Map ID 121

Data = Annual average groundwater level in feet above mean sea level



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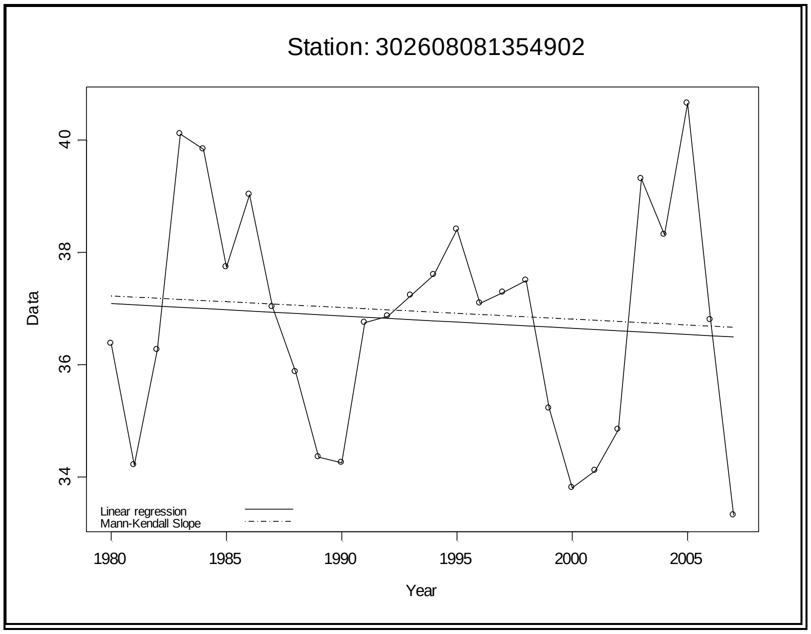

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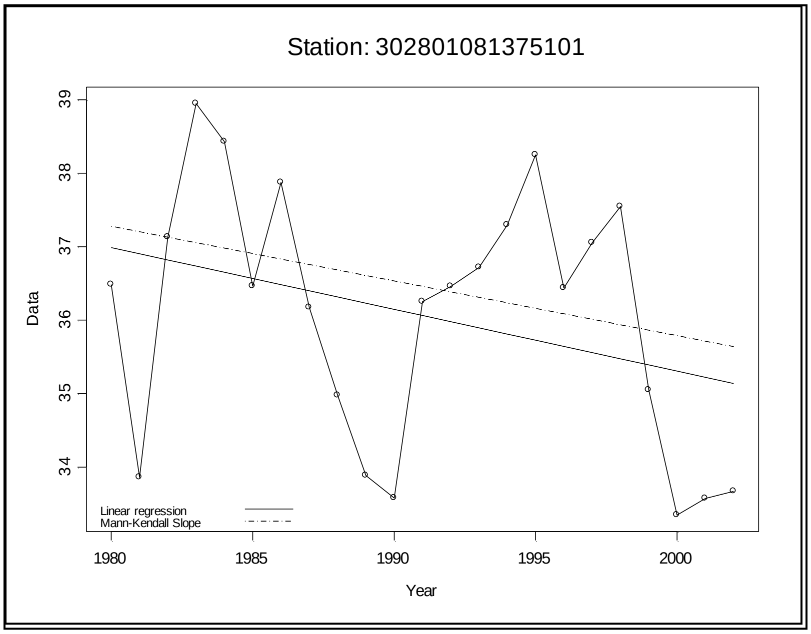
Data = Annual average groundwater level in feet above mean sea level



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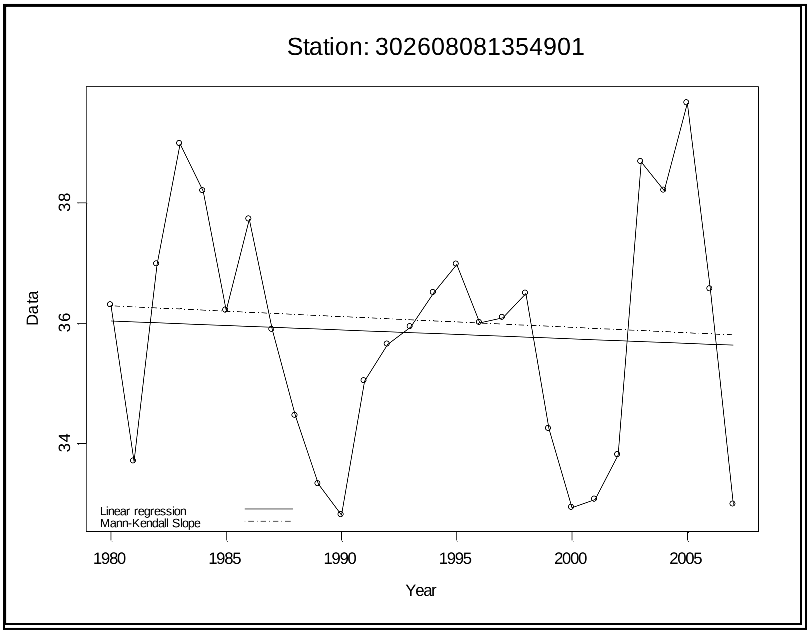
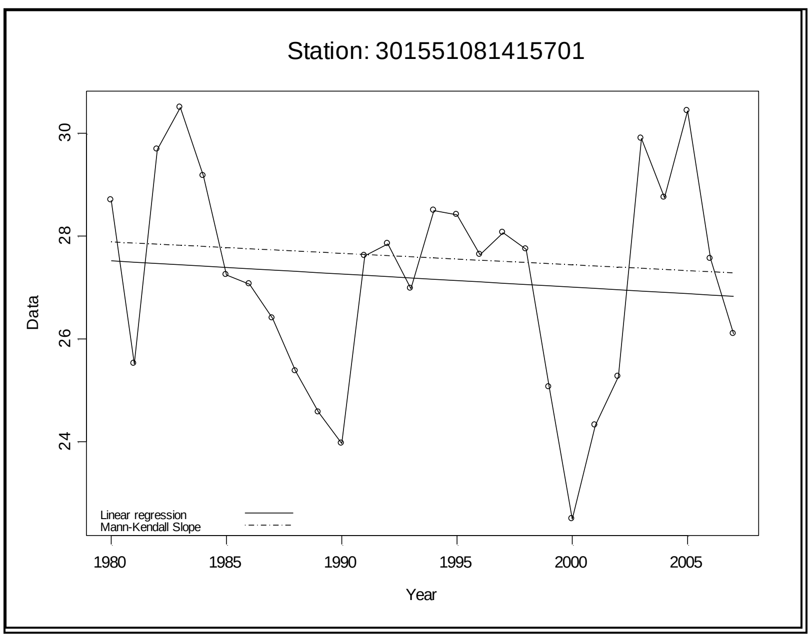


Map ID 125

Data = Annual average groundwater level in feet above mean sea level



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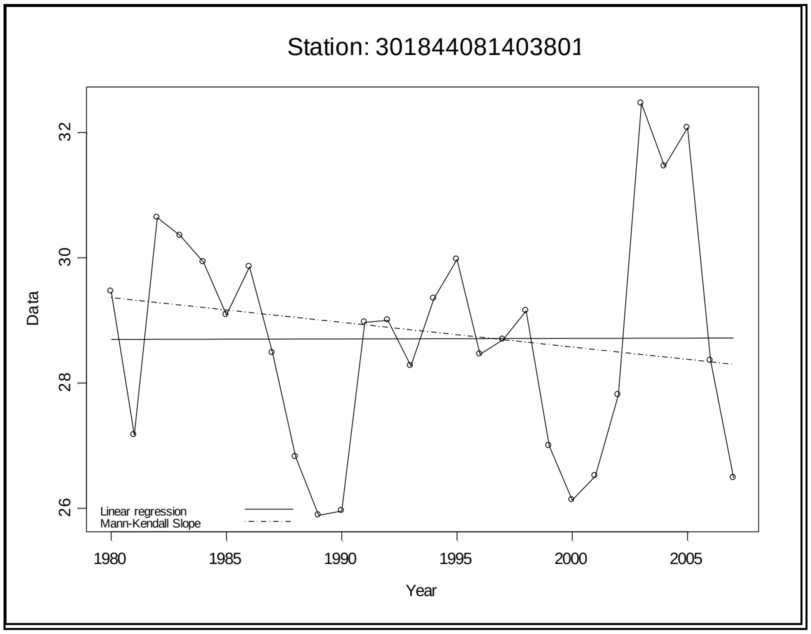
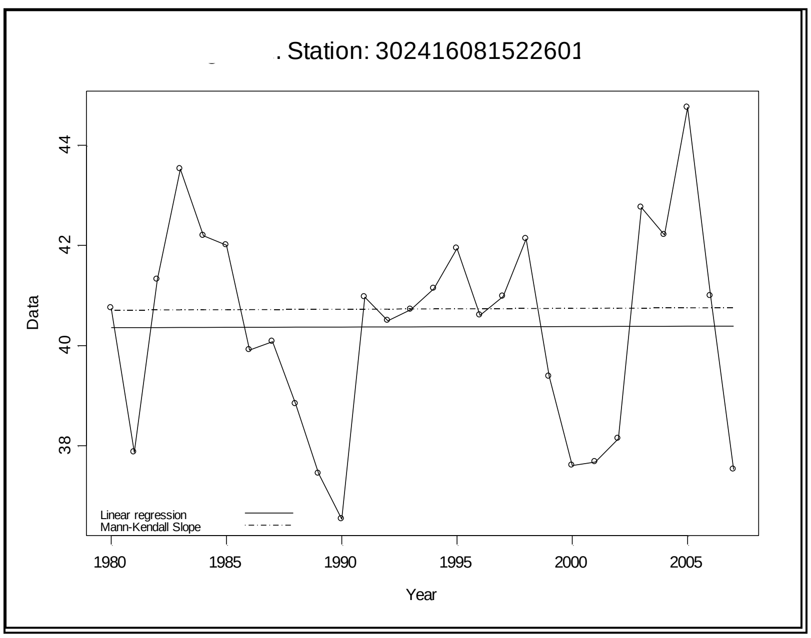


Map ID 127

Data = Annual average groundwater level in feet above mean sea level



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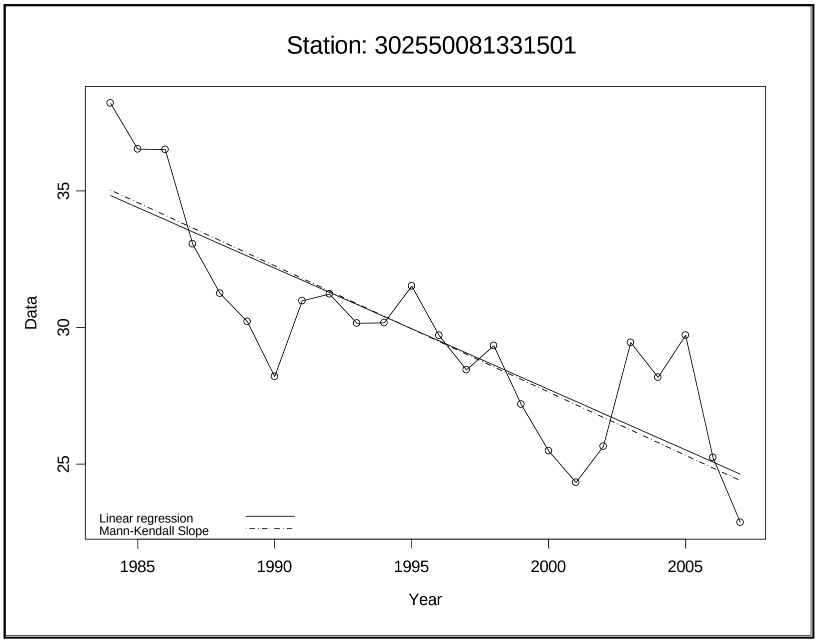
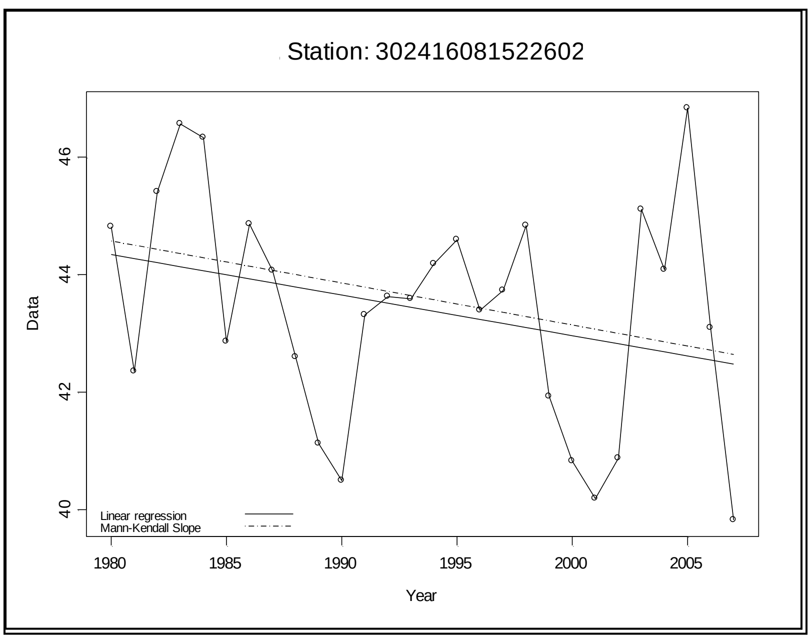


Map ID 129

Data = Annual average groundwater level in feet above mean sea level



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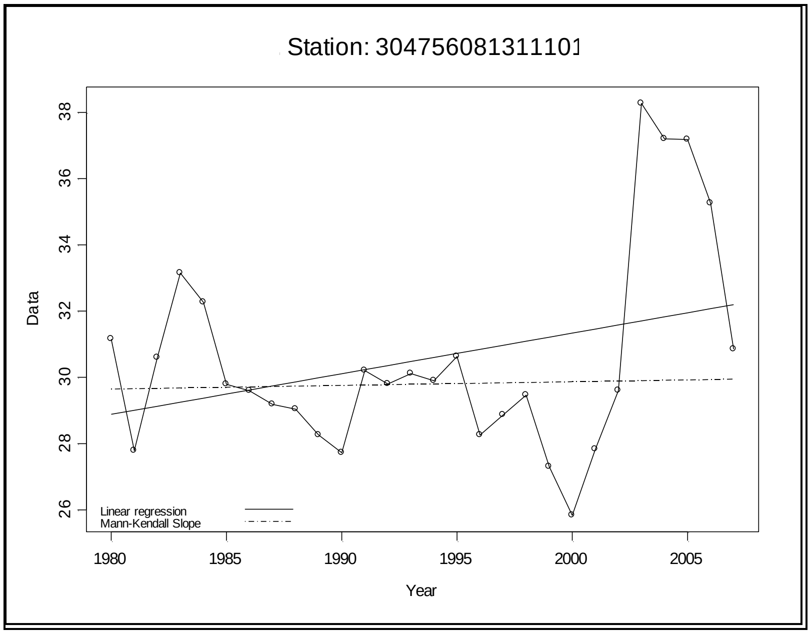
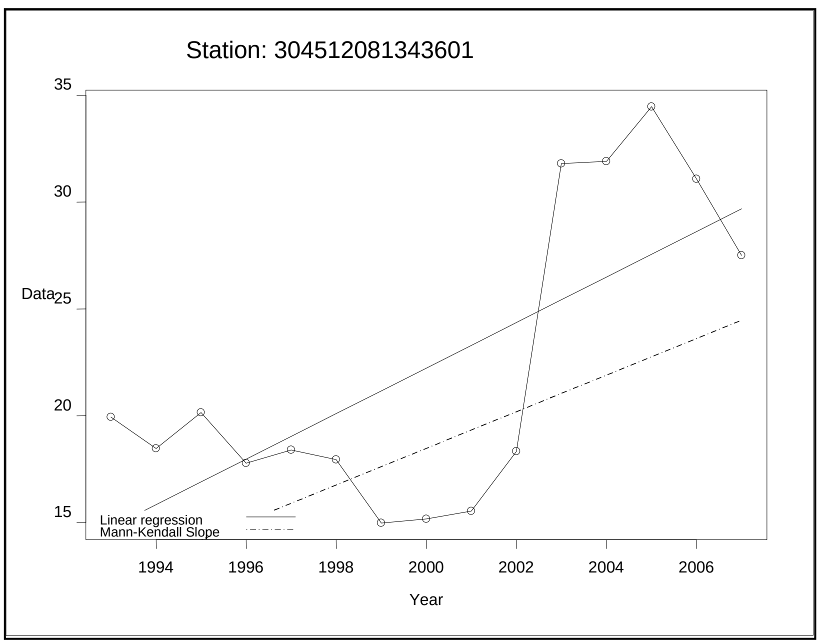


Map ID: 131

Data = Annual average groundwater level in feet above mean sea level



Map ID: 132

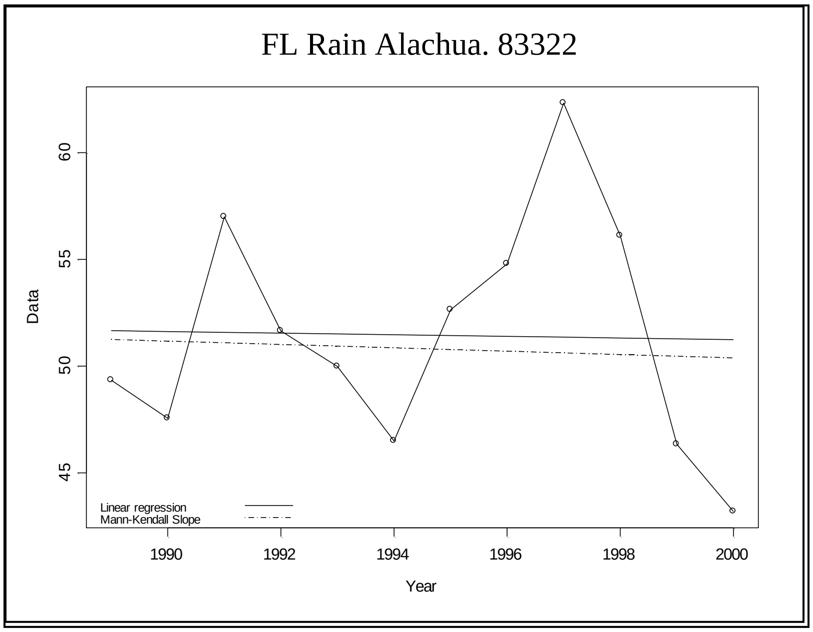
Appendix 6: NCDC Florida Rain Stations

Following is a summary of annual National Climatic Data Center (NCDC) rainfall stations in Florida.

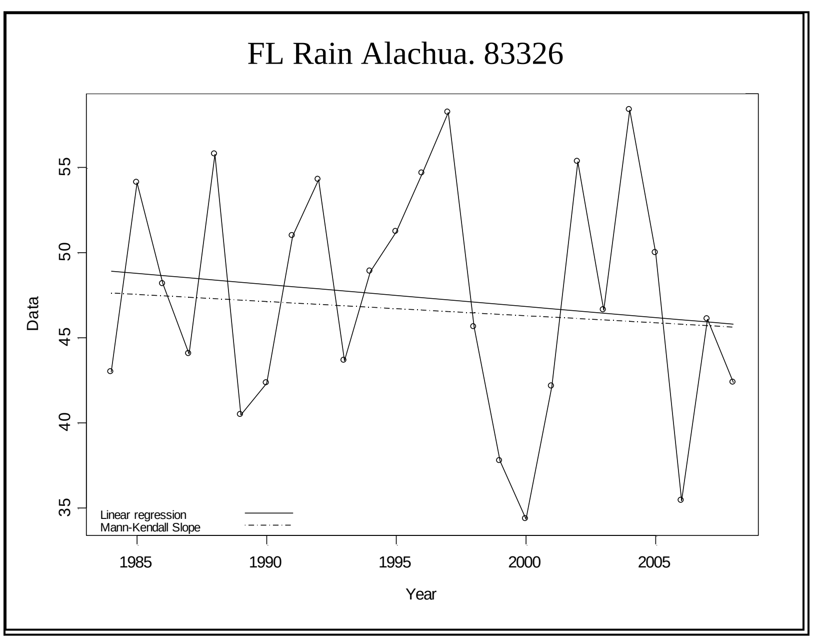
SiteID	County	Site Name	Start Year	# of Years
83321	Alachua	Gnvill 3 WSW	1980	9
83322	Alachua	Gville 11 WNW	1989	12
83326	Alachua	Gville Reg AP	1980	24
83956	Alachua	High Springs	1980	28
84327	Alachua	Island Grove	1980	1
83470	Baker	Glen St Mary 1W	1980	28
84723	Bradford	Lake Butler	1999	8
88529	Bradford	Starke	1980	14
84731	Columbia	Lake City 2E	1980	28
85705	Clay	Middleburg	1998	7
82008	Dixie	Cross City 1E	1980	27
88565	Dixie	Steinhatchee 6 ENE	1980	22
84394	Hamilton	Jasper	1980	28
85539	Lafayette	Mayo	1980	28
89120	Levy	Usher Towr	1980	28
85275	Madison	Madison	1980	28
85099	Suwannee	Live Oak	1980	28
87025	Taylor	Perry	1980	28
84366	Duval	Jacksonville Beach	1980	28
84358	Duval	Jacksonville Intl AP	1980	28
81978	Putnam	Crescent City	1980	28
82915	Putnam	Federal Point	1980	28

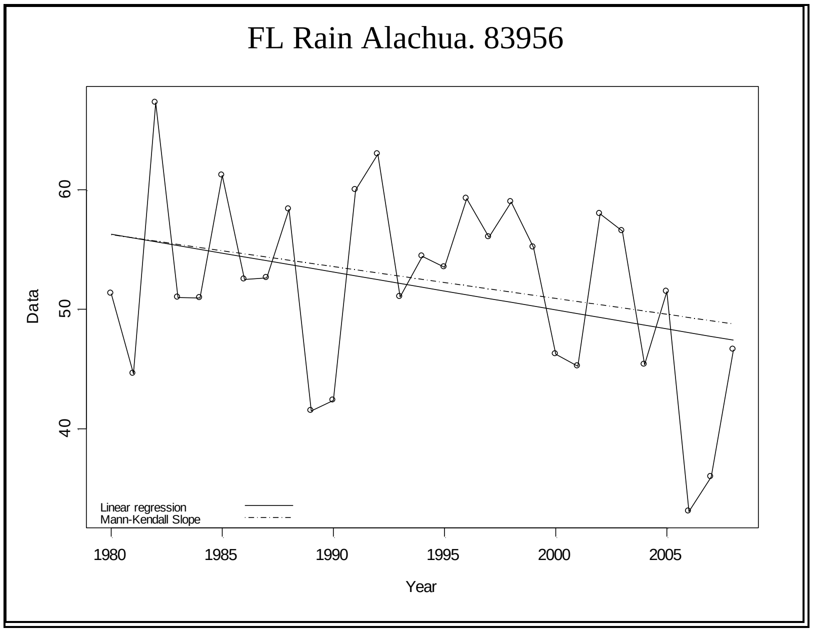
Appendix 7: NCDC Florida Rain Trend

Following is a summary of the trend detection plots of Florida rain data from the National Climatic Data Center (NCDC). Annual total rainfall inches were labeled as "data" (y-axes) and plotted against record year (x-axes).

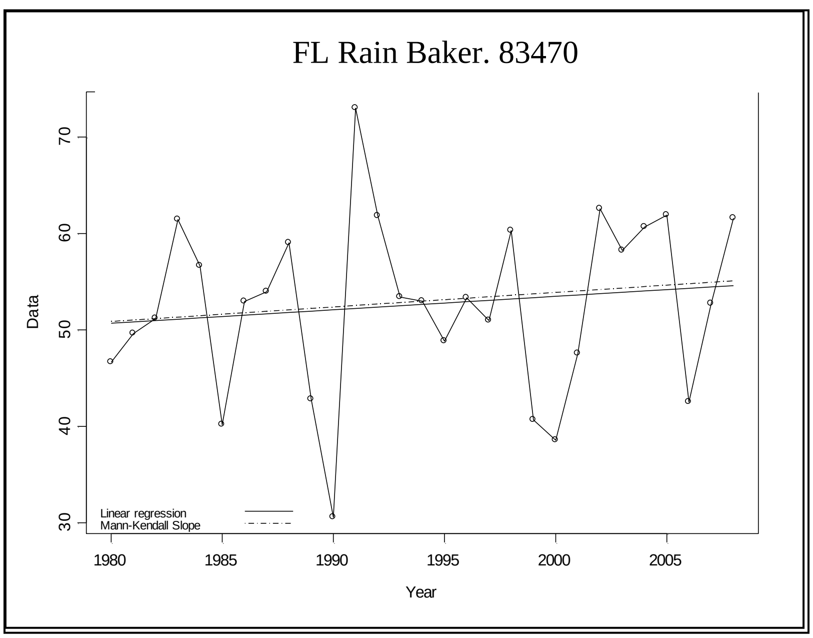


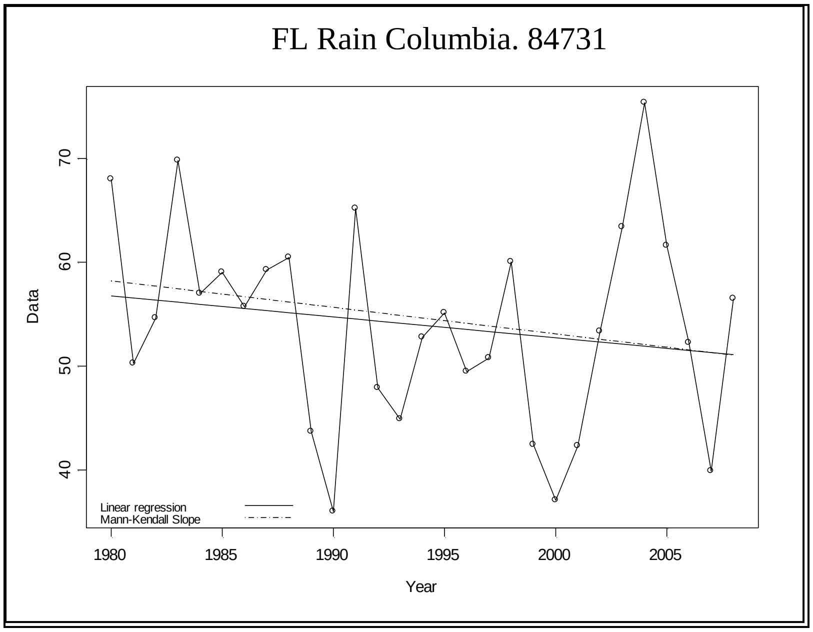
Data = Annual rainfall (inches)



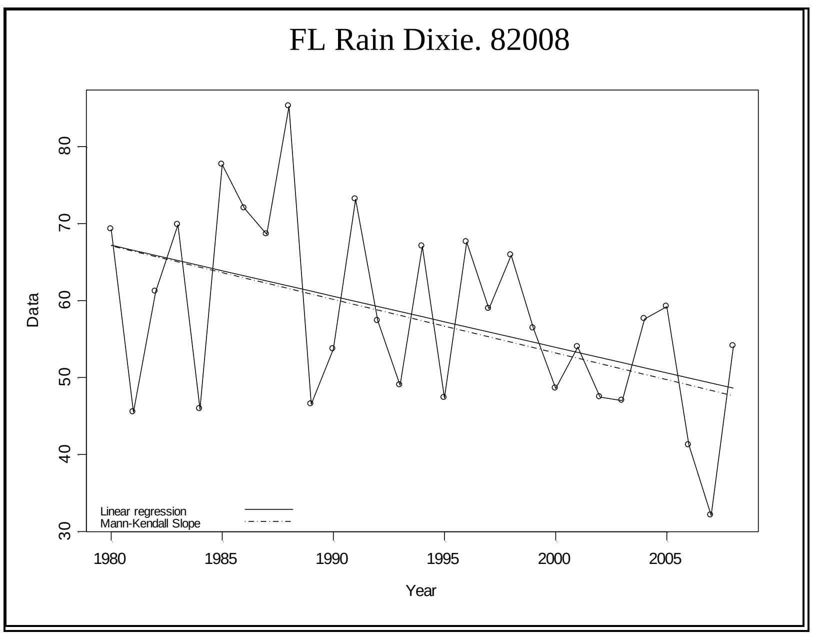


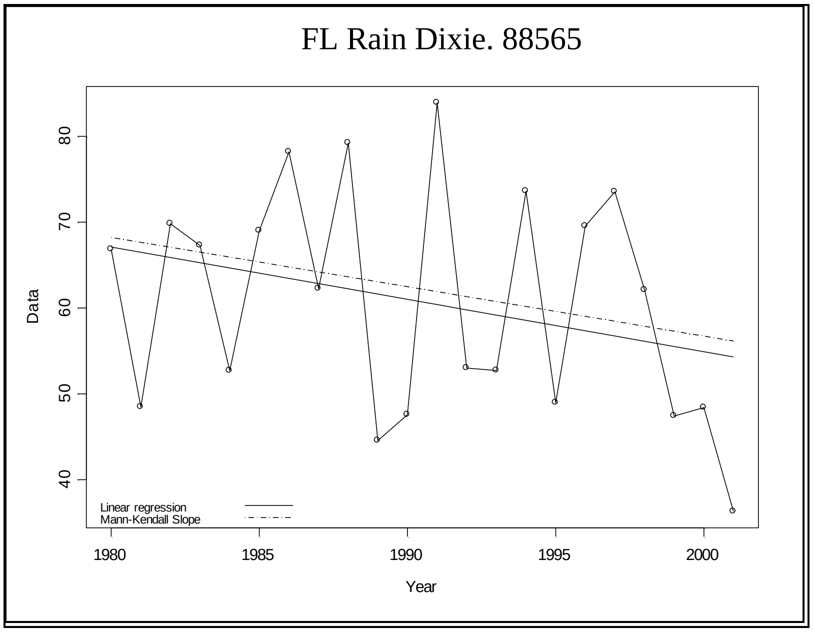
Data = Annual rainfall (inches)



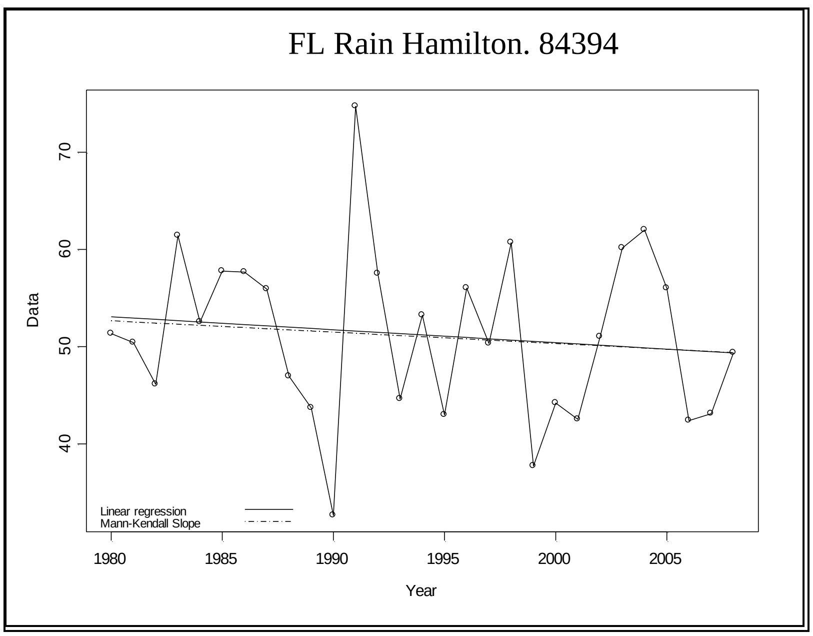


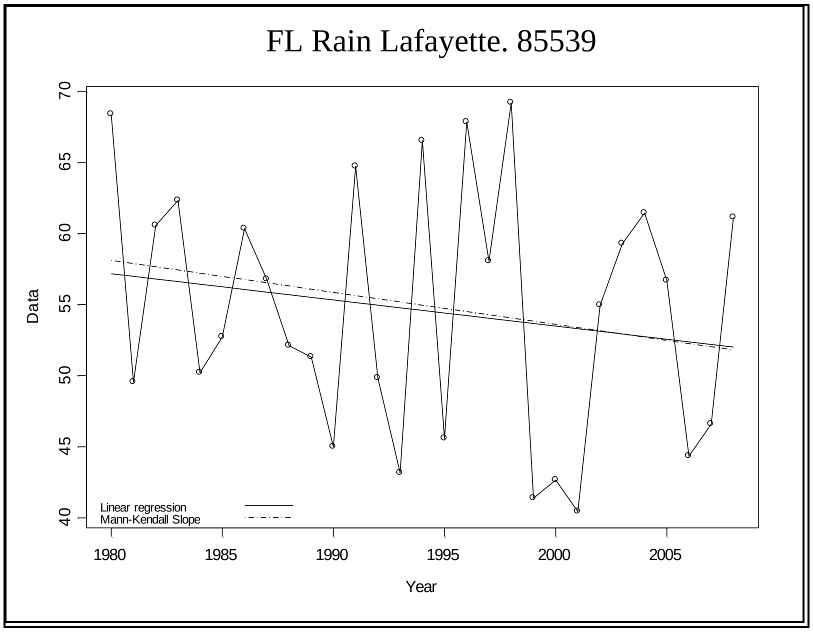
Data = Annual rainfall (inches)



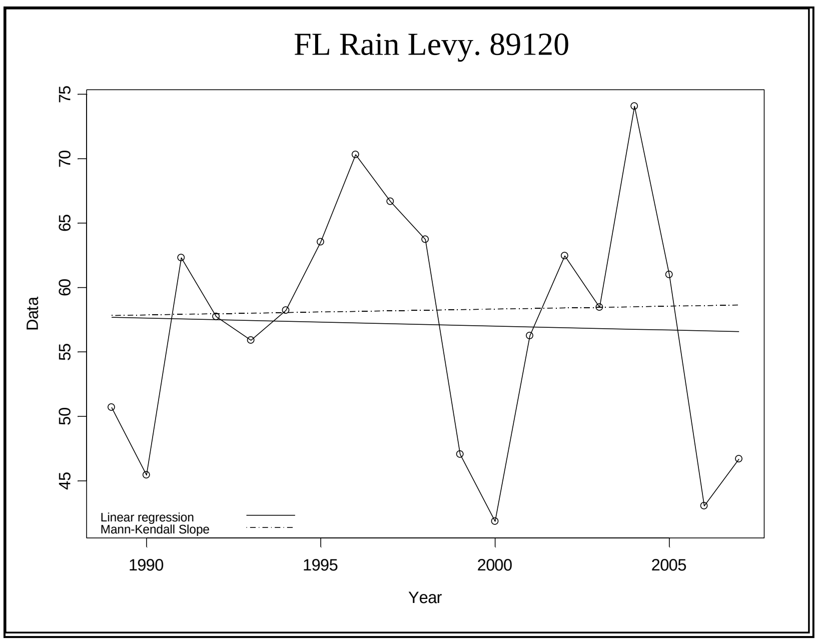


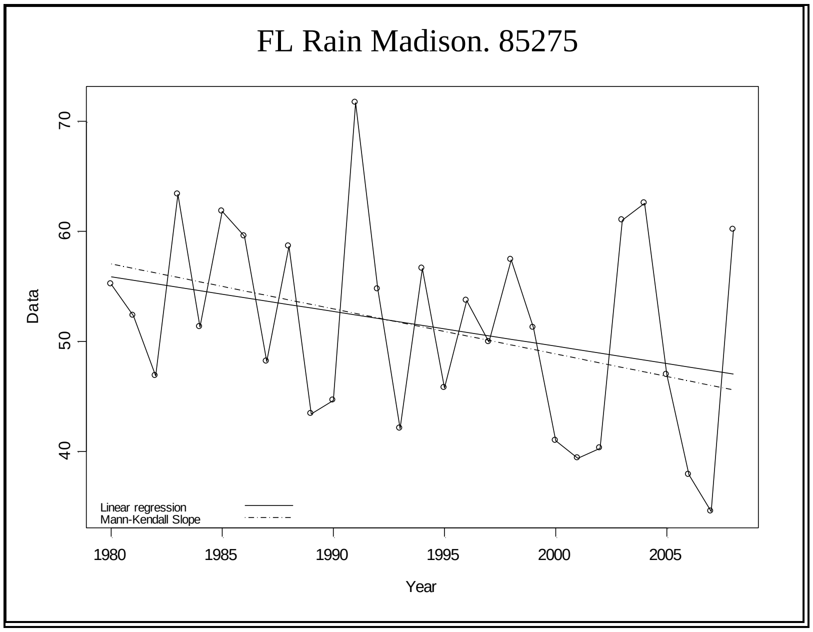
Data = Annual rainfall (inches)



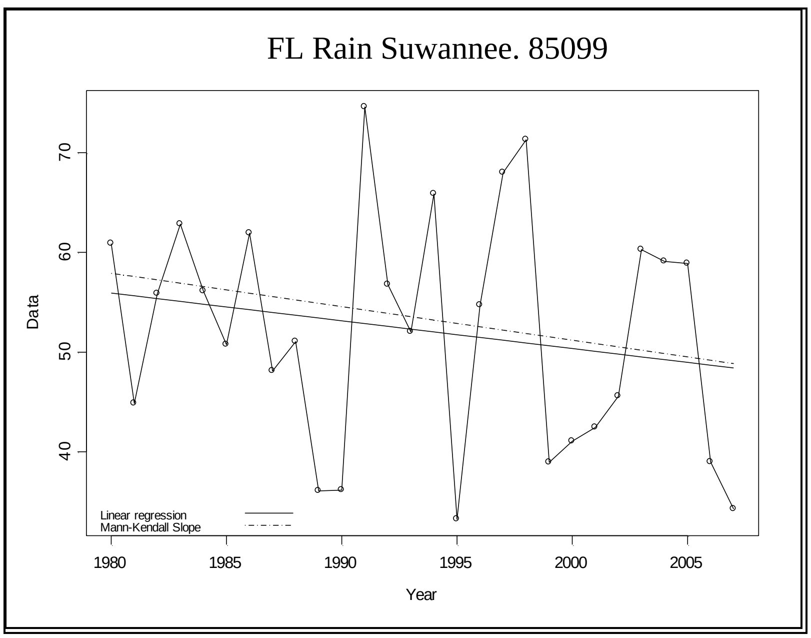


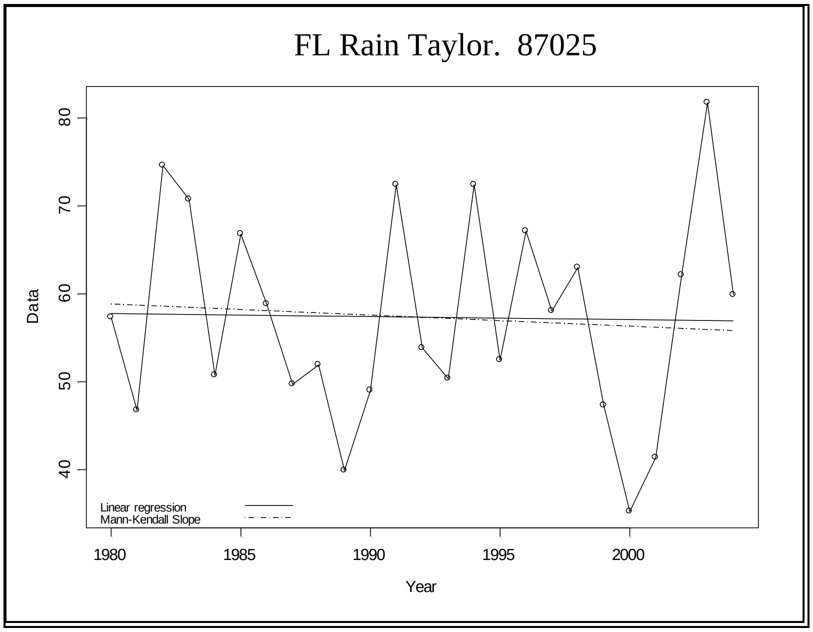
Data = Annual rainfall (inches)



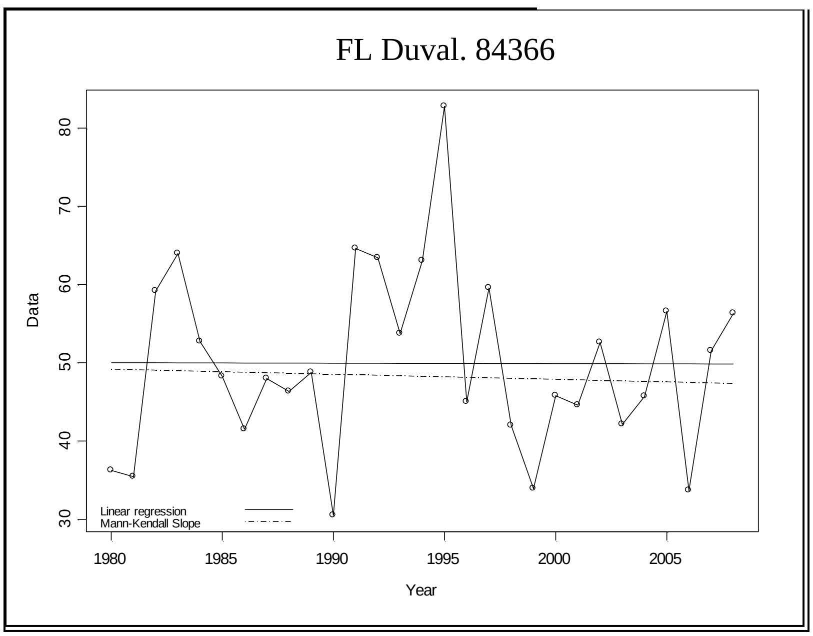


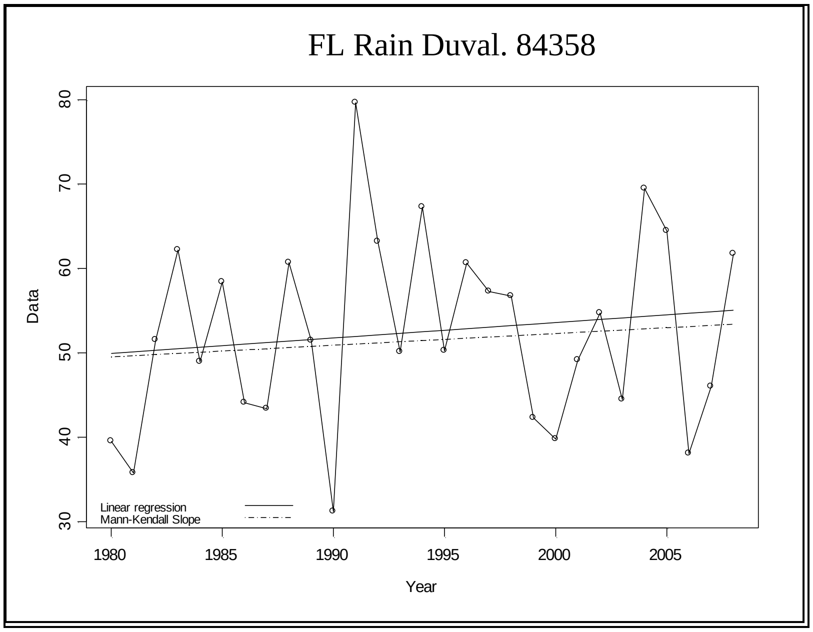
Data = Annual rainfall (inches)



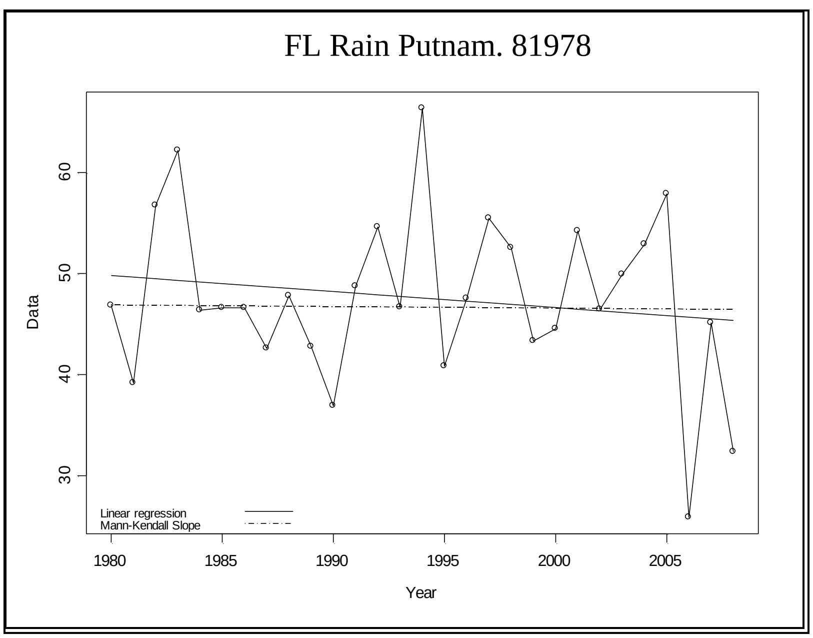


Data = Annual rainfall (inches)

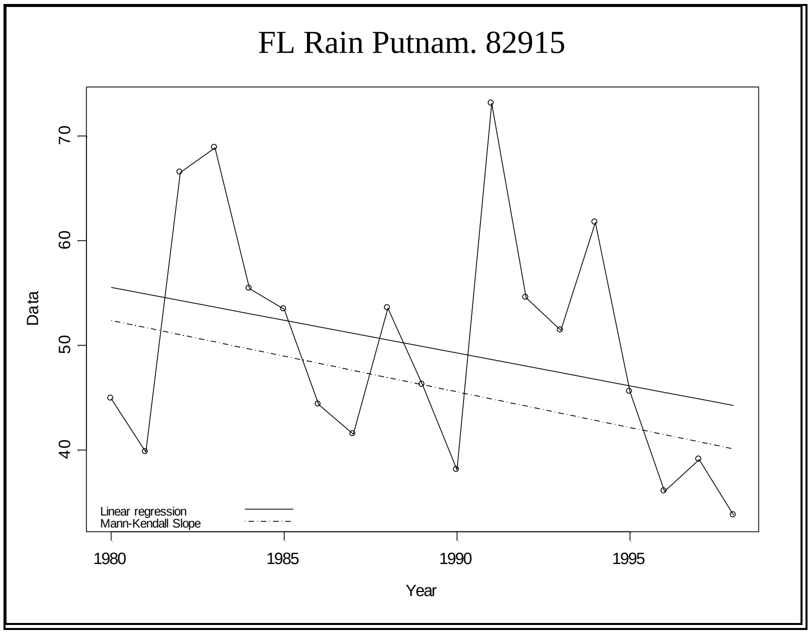




Data = Annual rainfall (inches)



Data = Annual rainfall (inches)



Data = Annual rainfall (inches)

Appendix 8: NCDC Georgia Rain Stations

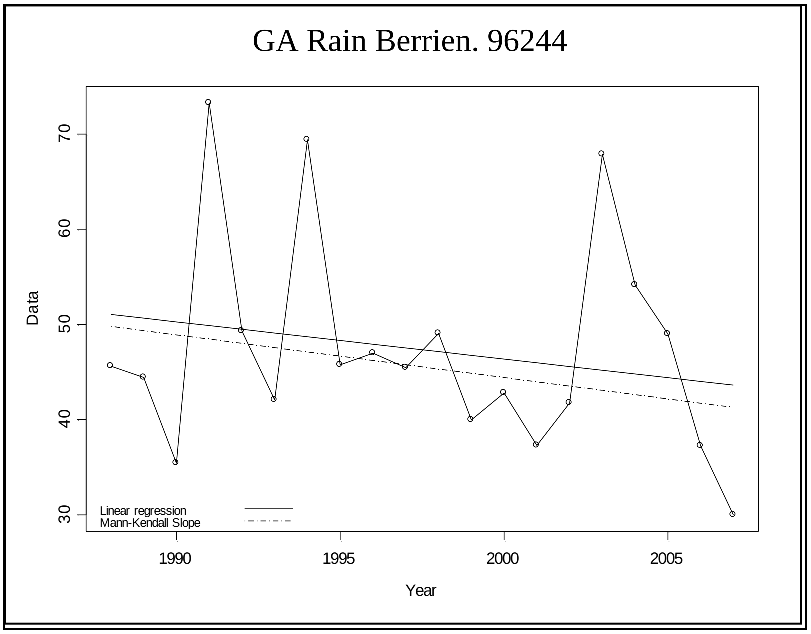
Following is a summary of annual rainfall stations from the National Climatic Data Center (NCDC) in Georgia.

Site ID	County	Site Name	Start Year	# of Years
96237	Berrien	Nashville 5 SSE	1980	8
96244	Berrien	Nashville 4N	1980	21
96219	Brantley	Nashville 6NE	1987	29
90441	Brantley	Atkinson 2 w	1980	27
97276	Brooks	Quitman 2 NW	1980	28
93325	Charlton	Fargo 17 NE	1982	26
93460	Charlton	Folkston 3 SW	1980	27
93465	Charlton	Folkston 9 SW	1980	28
94429	Clinch	Homerville 5 N	1980	28
96087	Colquitt	Moultrie 2 ESE	1980	28
96259	Echols	Needmore 2 W	2001	3
98271	Echols	Statenville 6 NE	2000	1
93845	Lowndes	Valdosta Reg AP	1980	17
98972	Lowndes	Valdosta 3 E	1980	12
98974	Lowndes	Valdosta 2 S	2003	5
96838	Pierce	Patterson	1980	27
99186	Pierce	Waycross 4 NE	1980	28
98666	Thomas	Thomasville 3 NE	1980	28
98703	Tift	Tifton	1980	28
90406	Turner	Ashburn 3 ENE	1980	28
99192	Ware	Waycross Ware Co AP	1980	15
92361	Worth	Crisp Co Pwr Dam	1980	29

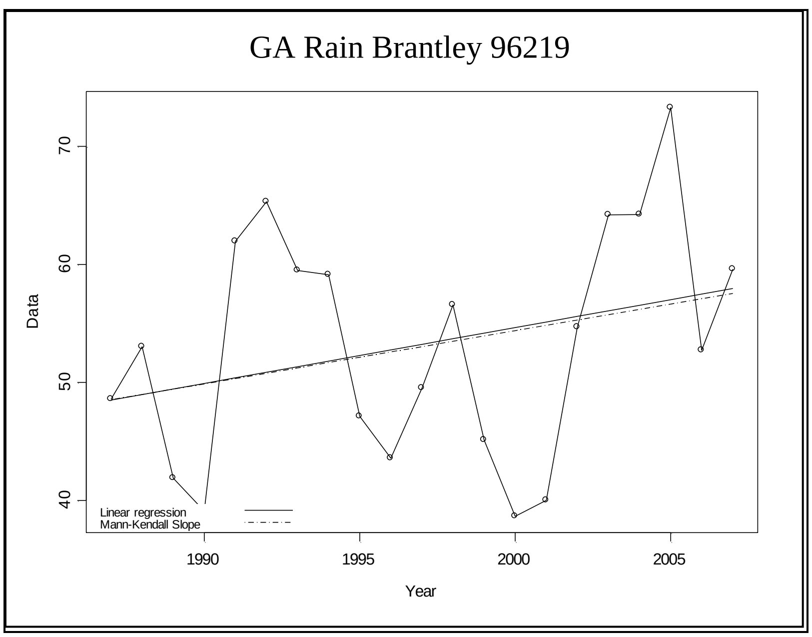
Appendix 9: NCDC Georgia Rain Trend

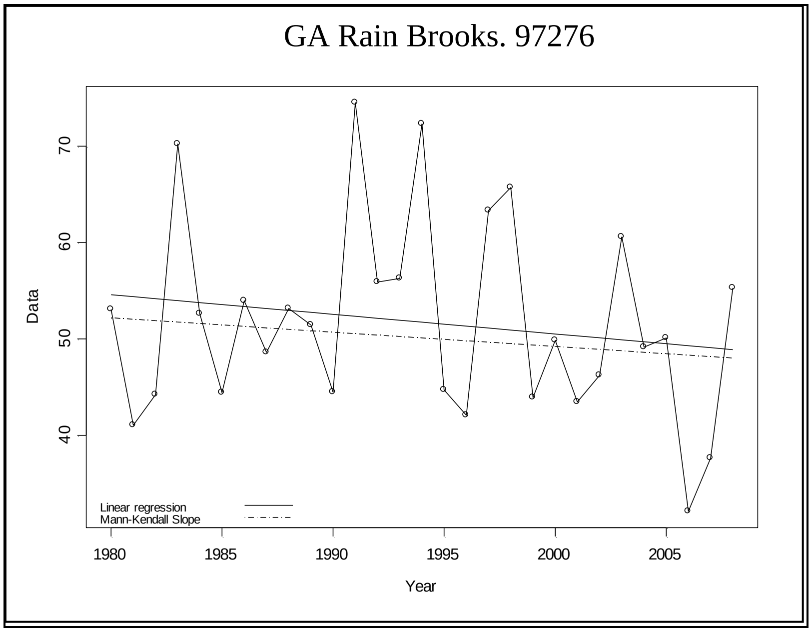
Following is a summary of the trend detection plots of Georgia rain data from the National Climatic Data Center (NCDC). Total annual rainfall in inches were labeled as “data” (y-axes) and plotted against record year (x-axes).

Data = Annual rainfall (inches)

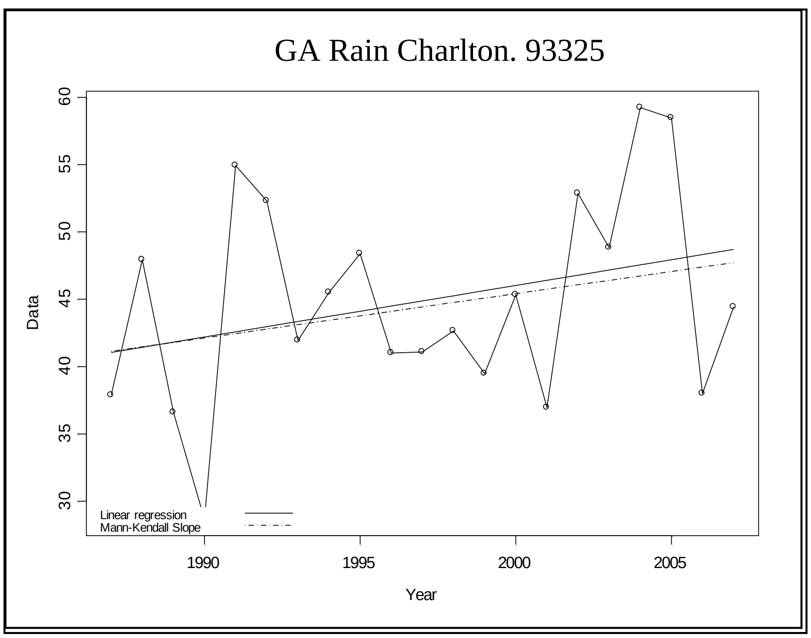


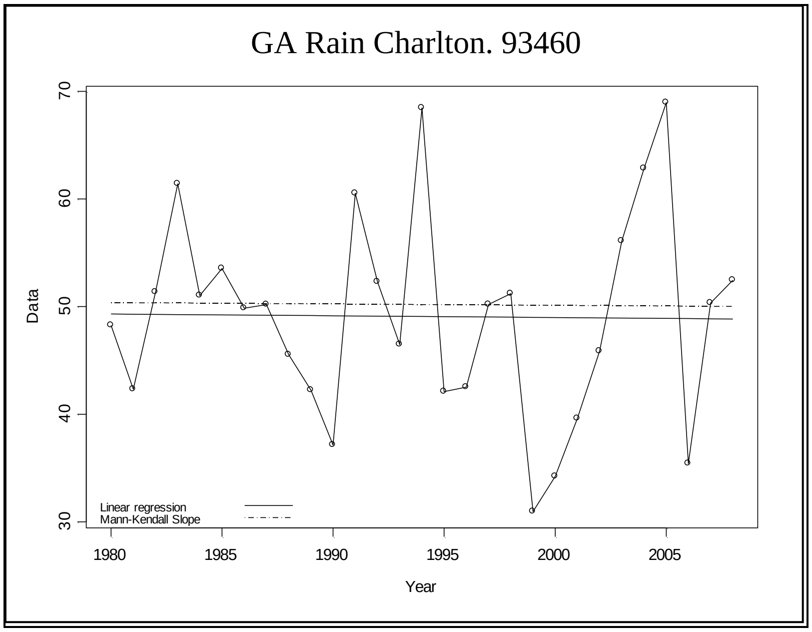
Data = Annual rainfall (inches)



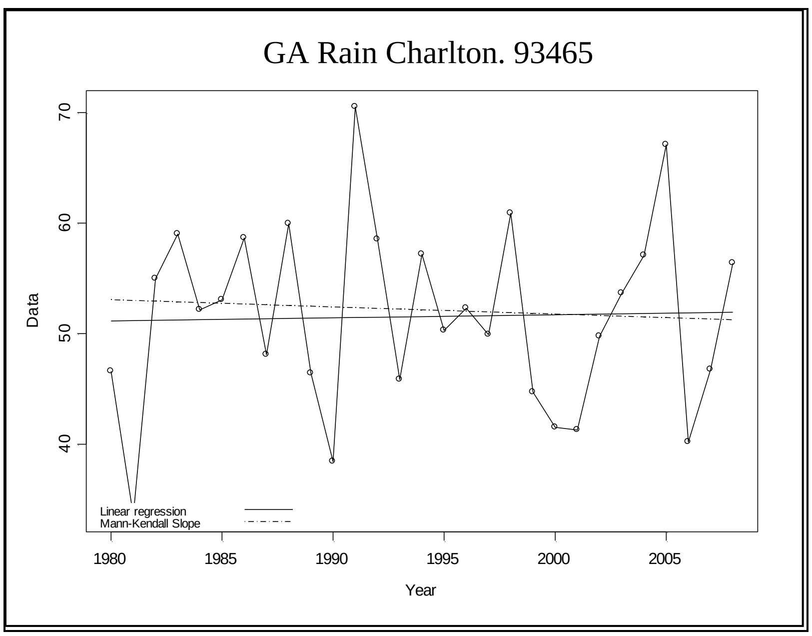


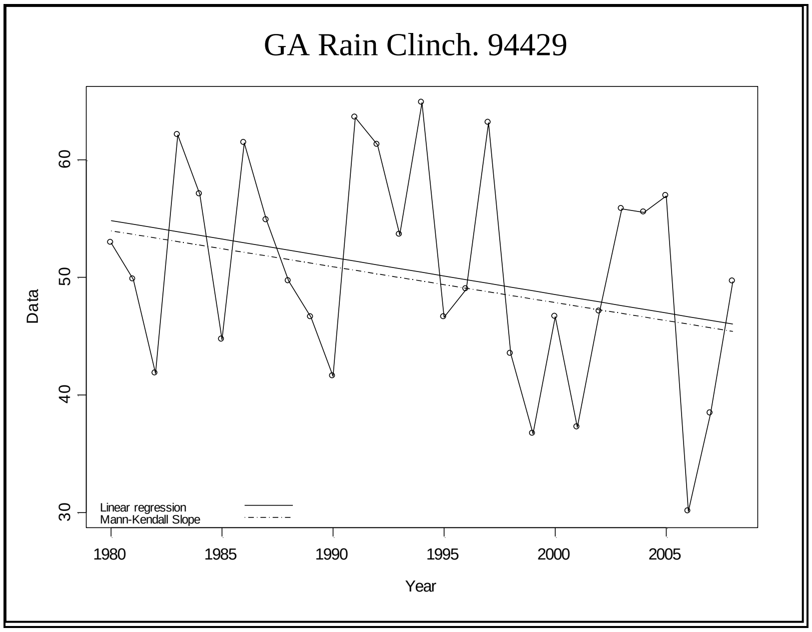
Data = Annual rainfall (inches)



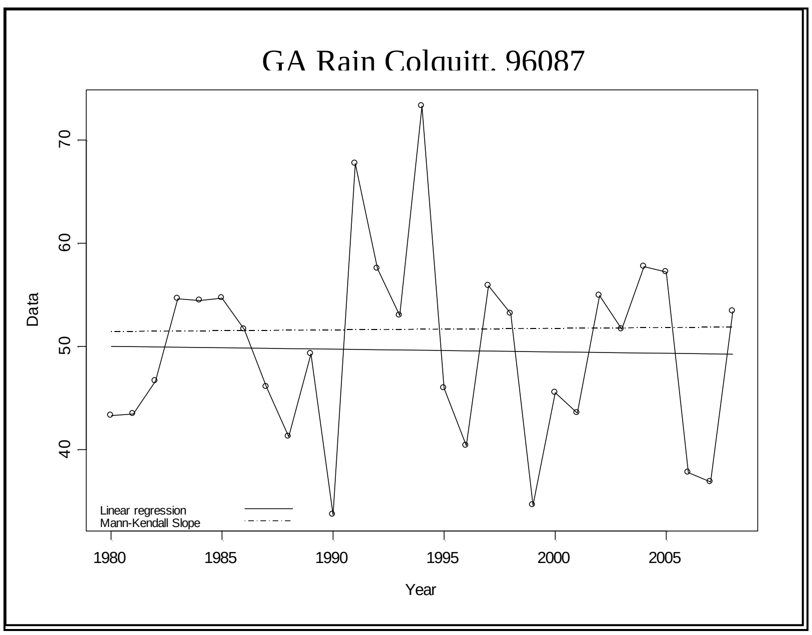


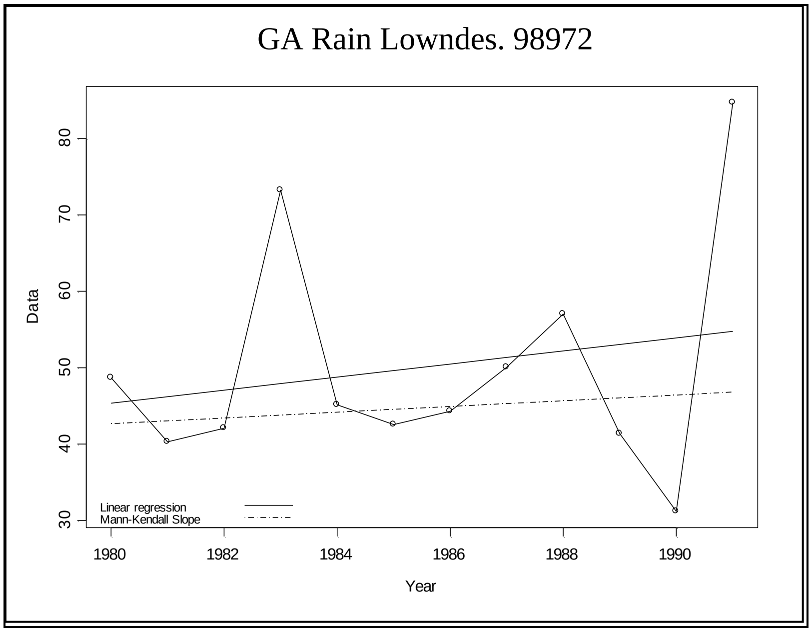
Data = Annual rainfall (inches)



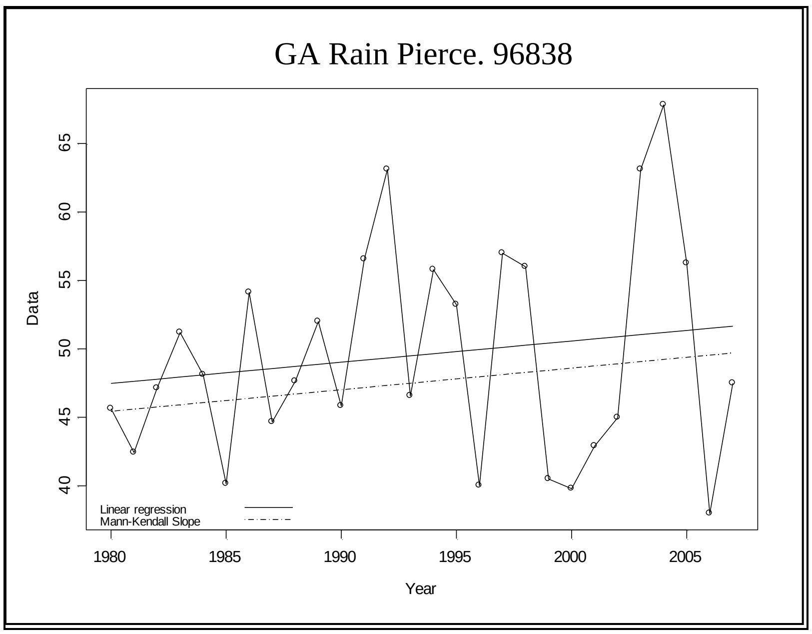


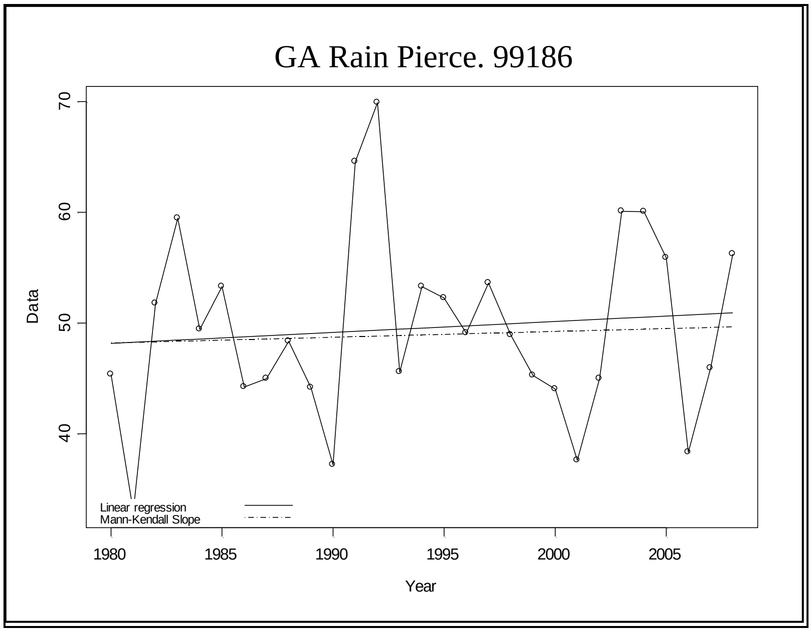
Data = Annual rainfall (inches)



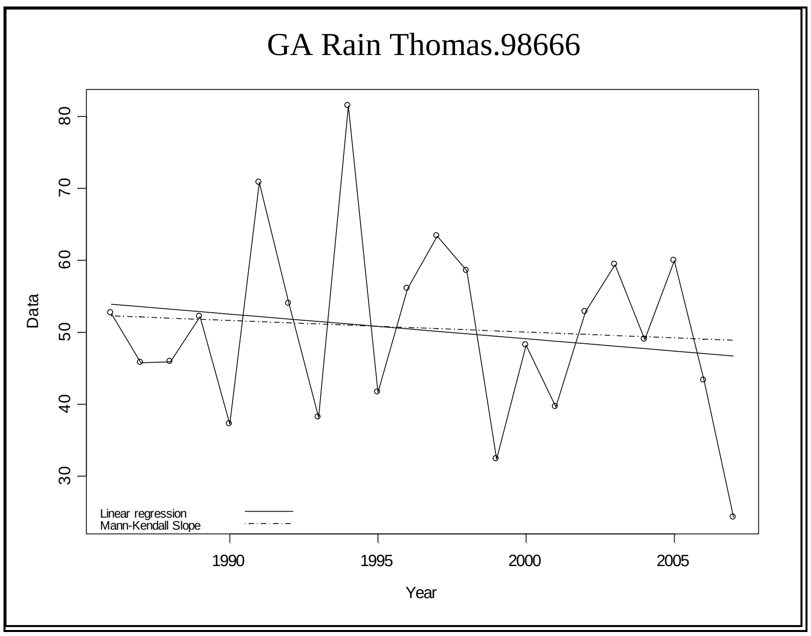


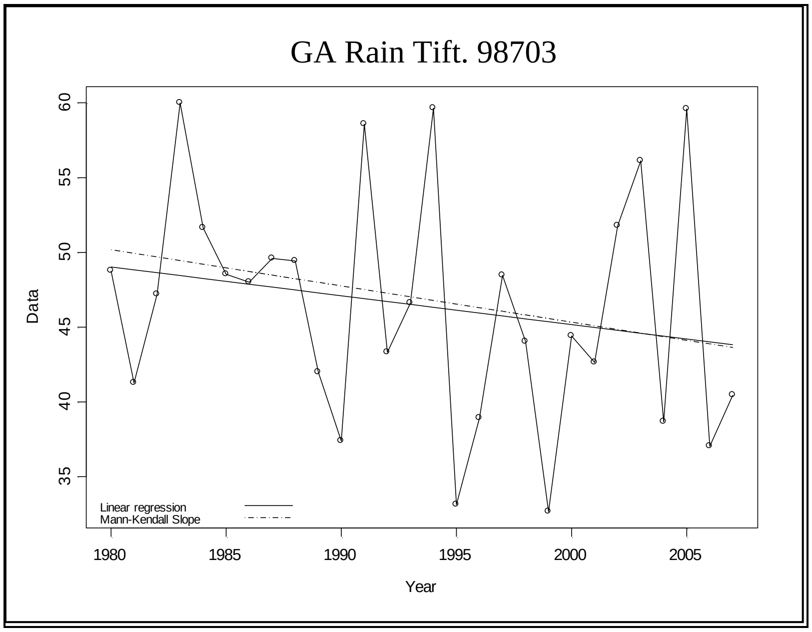
Data = Annual rainfall (inches)



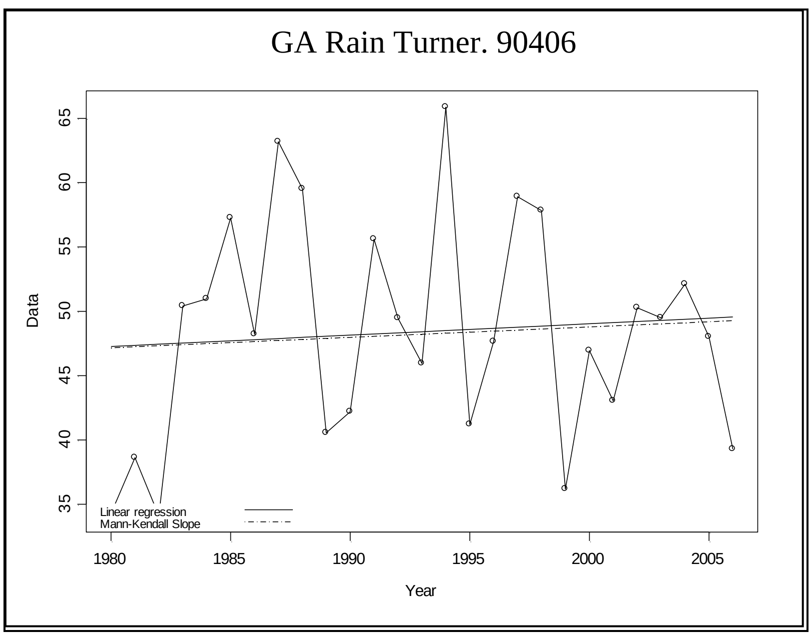


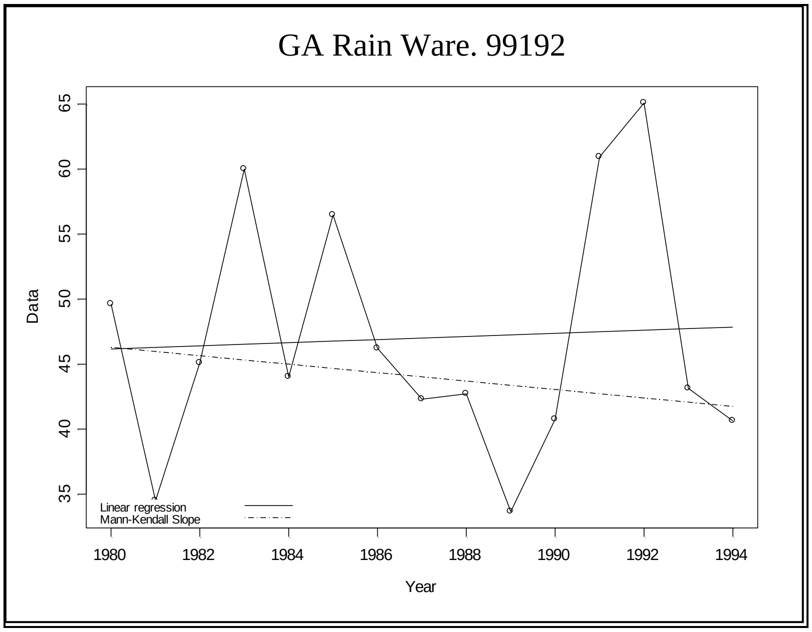
Data = Annual rainfall (inches)



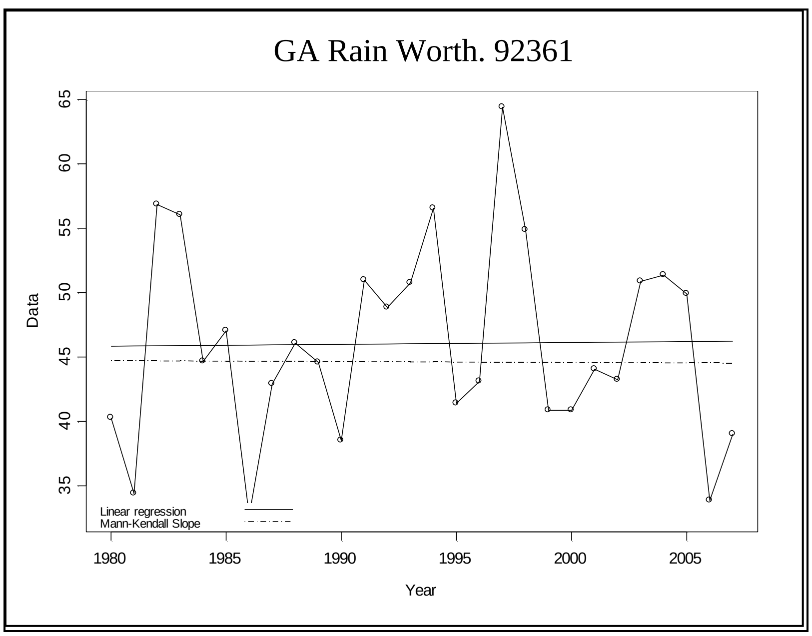


Data = Annual rainfall (inches)





Data = Annual rainfall (inches)



Data = Annual rainfall (inches)

Appendix 10: USGS Florida Stream Stations

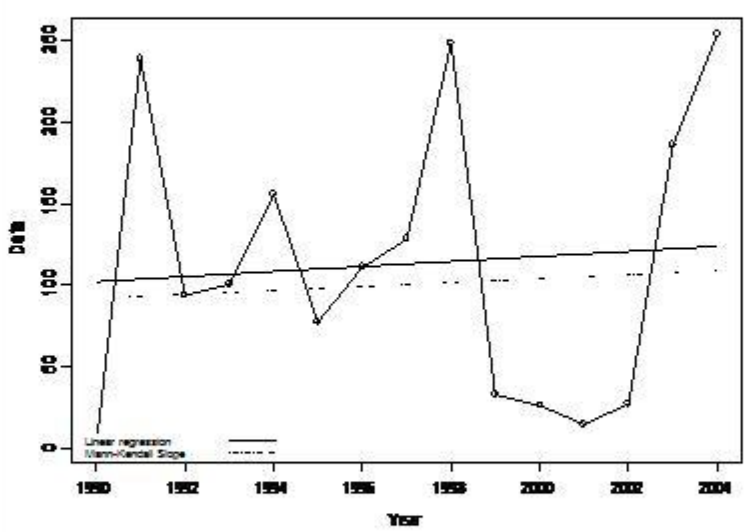
Following is a listing of United States Geological Survey (USGS) daily stream gauges in Florida used in this study. Years reflect the largest continuous portion of record between 1980 and 2007.

Site ID	County	SiteName	Years	# of Years
02228500	Baker	N. Prong St. Mary's at Moniac, GA	1990-2004	15
02231000	Baker	St. Marys Nr McClenny	1980-2007	28
02315500	Columbia	Suwannee River At White Springs	1980-2007	28
02319000	Hamilton	Withlacoochee River Nr Pinetta	1980-2007	28
02319500	Suwannee	Suwannee River At Ellaville	1980-2007	28
02320000	Suwannee	Suwannee River At Luraville	1997-2007	11
02320500	Suwannee	Suwannee River At Branford	1980-2007	28
02321000	Bradford	New River Nr Lake Butler Fla	1993-2007	14
02321500	Union	Santa Fe River At Worthington Springs	1980-2007	27
02322500	Columbia	Santa Fe River Nr Fort White	1980-2007	28
02322800 (not used)	Suwannee	Santa Fe River Nr Hildreth	2001-2005	6 (not used)
02323500	Gilchrist	Suwannee River Nr Wilcox	1980-2007	27
02320700	Alachua	Santa Fe River at Graham	1980-2007	27

Appendix 11: USGS Florida Stream Trend

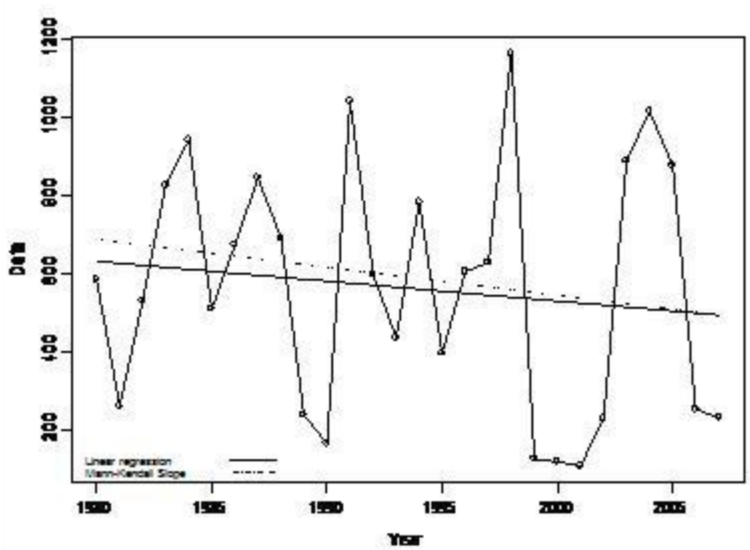
Following is a summary of the trend detection plots of Florida stream data from United States Geological Survey (USGS). Annual stream flow data (average) in cubic feet per second (cfs) were labeled as “data” (y-axes) and plotted against record year (x-axes).

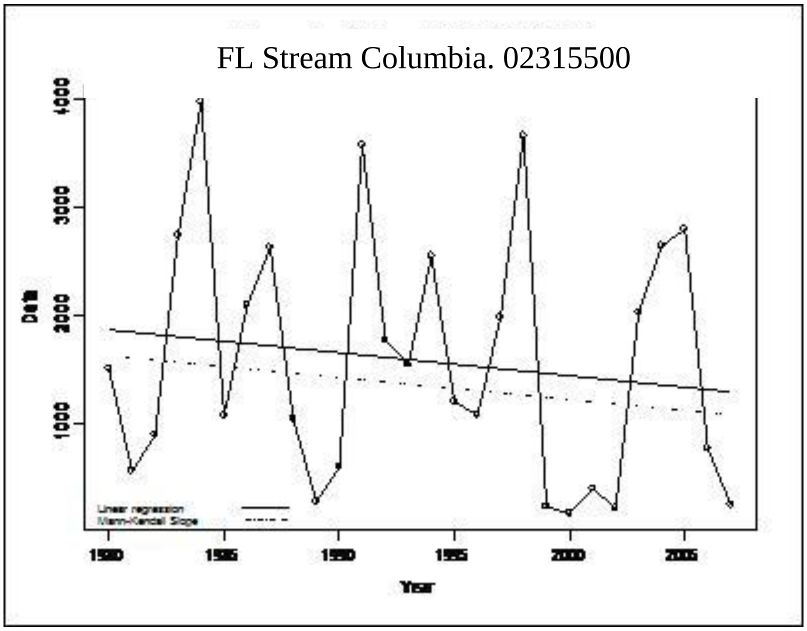
FL Stream Baker. 02228500



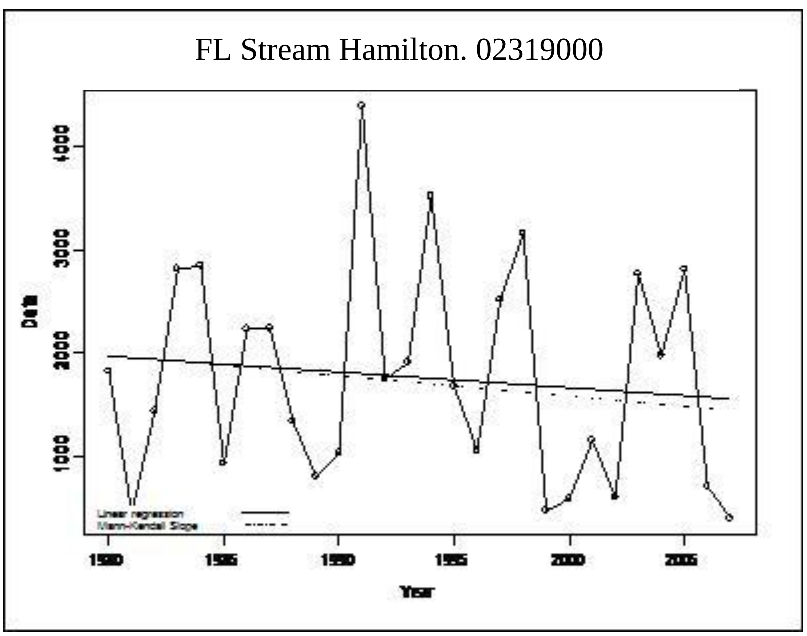
Data = Average annual streamflow (cfs)

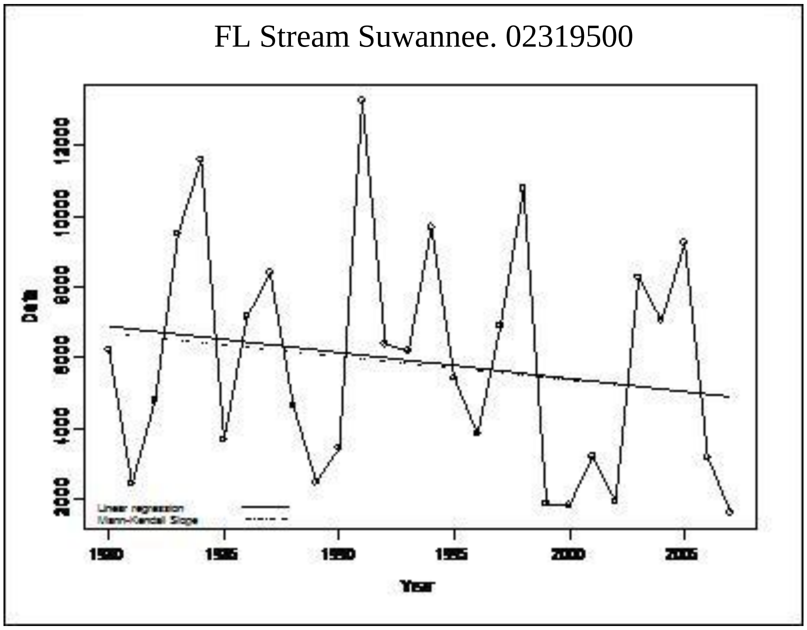
FL Stream Baker. 02231000



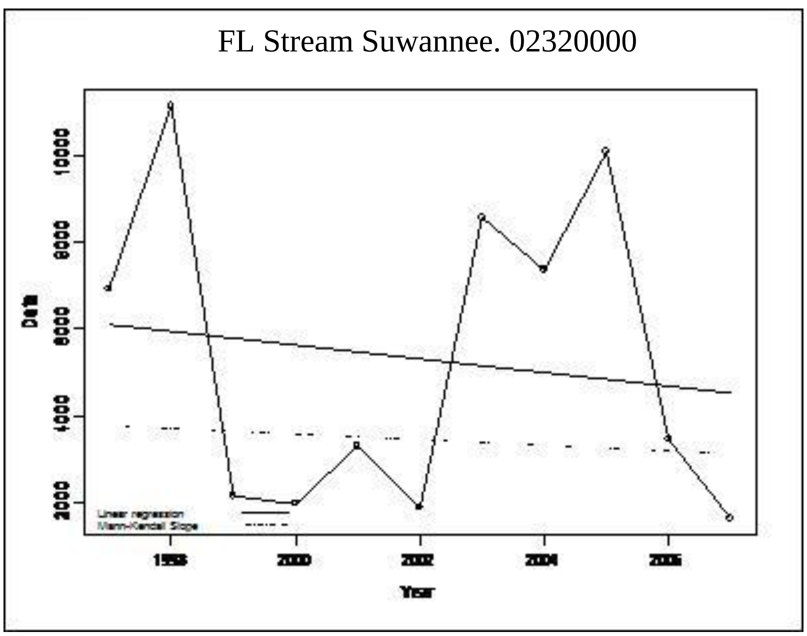


Data = Average annual streamflow (cfs)

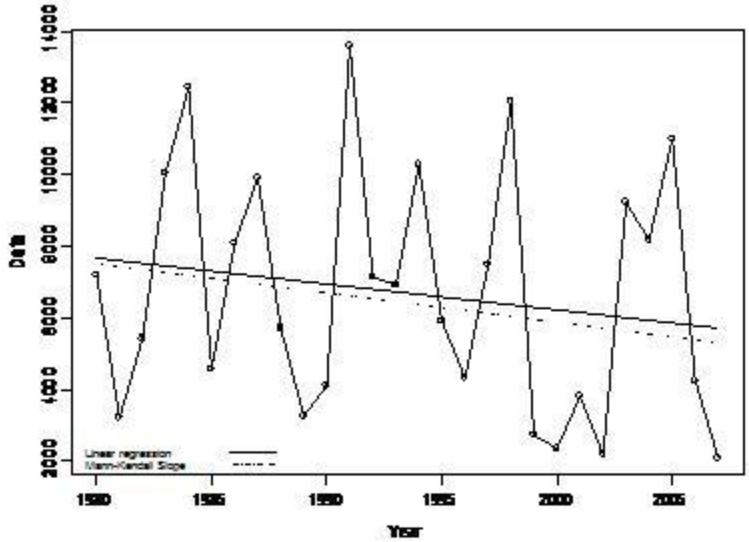




Data = Average annual streamflow (cfs)

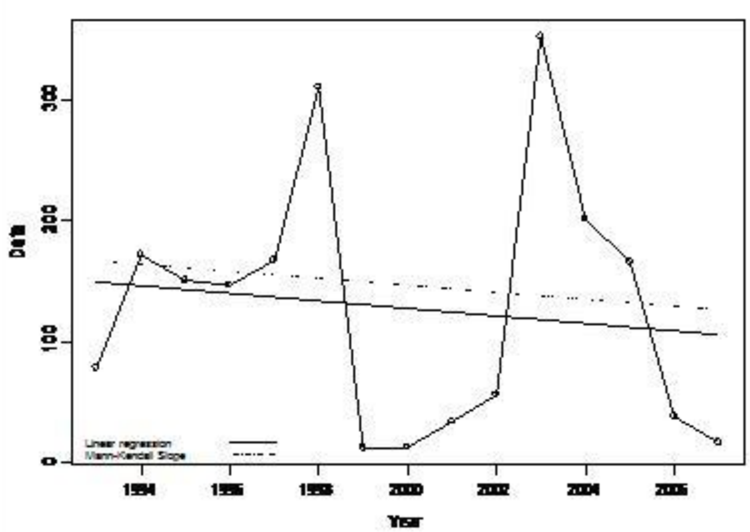


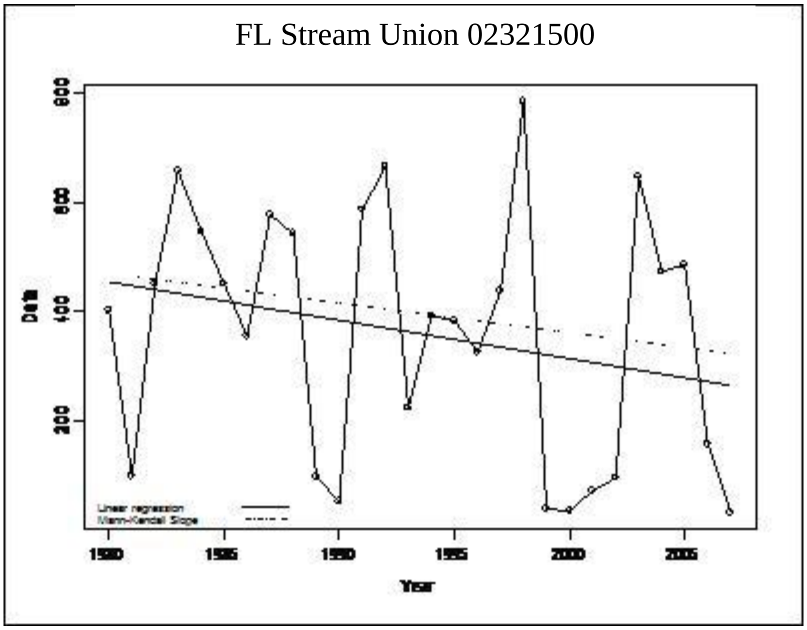
FL Stream Suwannee. 02320500



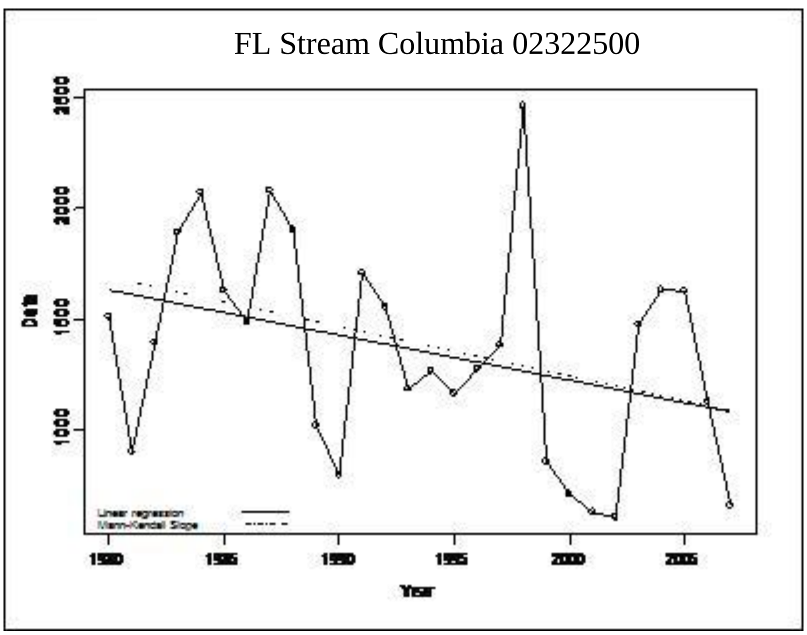
Data = Average annual streamflow (cfs)

FL Stream Bradford 02321000

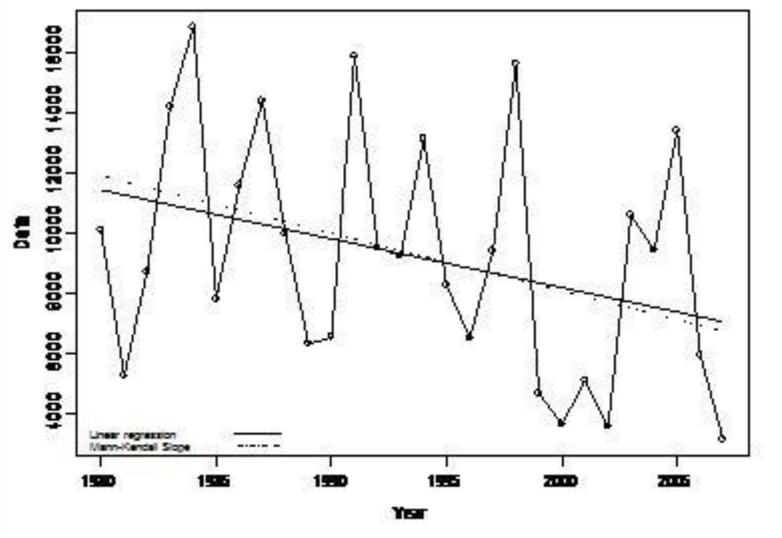




Data = Average annual streamflow (cfs)

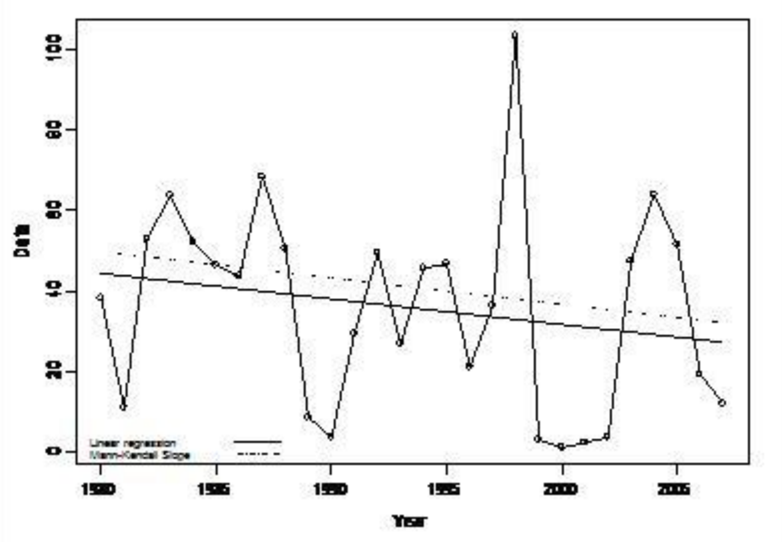


FL Stream Gilchrist 02323500



Data = Average annual streamflow (cfs)

FL Stream Alachua 02320700



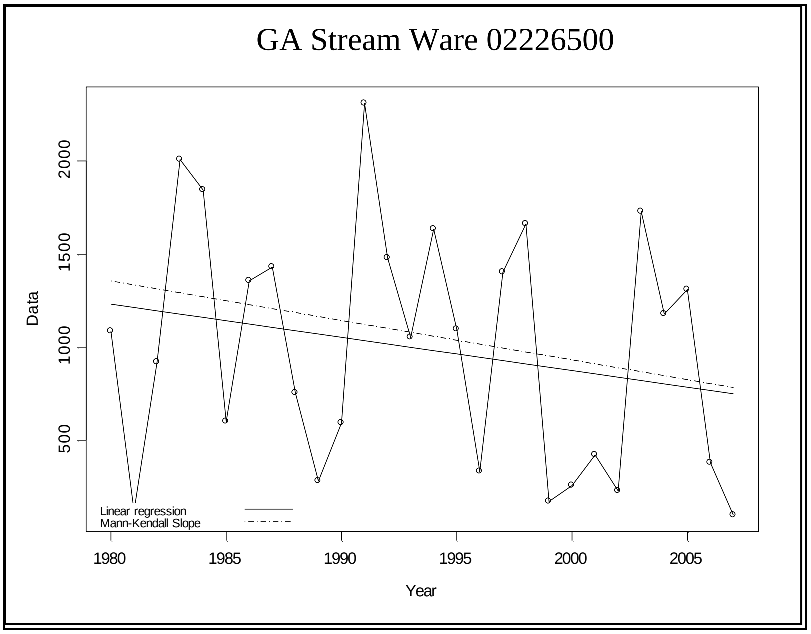
Appendix 12: USGS Georgia Stream Stations

Following is a summary of the annual stream flow data from United States Geological Survey (USGS) in Georgia.

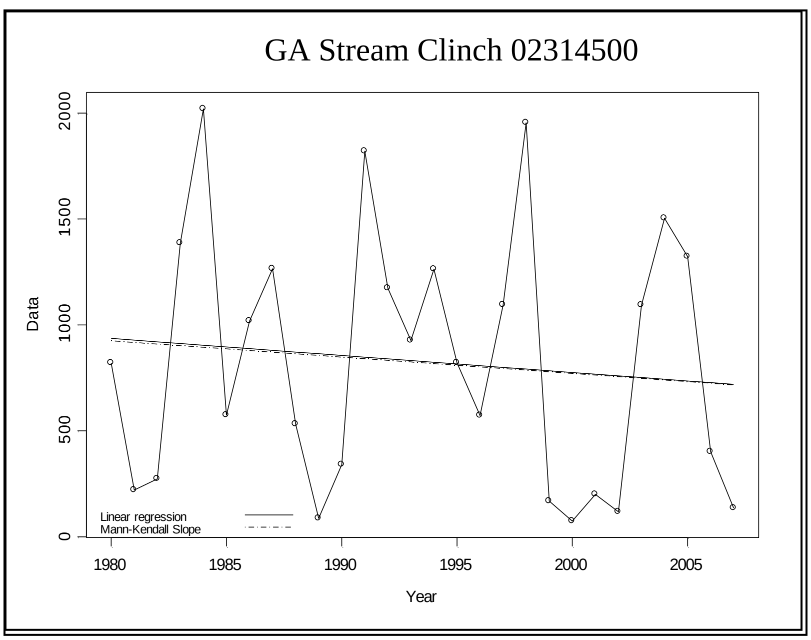
Site ID	County	Site Location	Years	# of Years
02226500	Ware	Satilla River near Waycross, GA	1980-2007	28
02314500	Clinch	Suwannee River at US 441, at Fargo, GA	1980-2007	28
02316000	Berrien	Alapaha River near Alapaha, GA	2002-2007	6 (not used)
02317500	Echols	Alapaha River at Statenville, GA	1980-2007	28
02318000	Cook	Little River near Adel, GA	2002-2007	6 (not used)
02318500	Brooks	Withlacoochee River at US 84, near Quitman, GA	1994-2007	14
02318700	Brooks	Okapilco Creek at Ga 33, near Quitman, GA	1980-2007	28
02350512	Worth	Flint River at Ga 32, near Oakfield, GA	1988-2007	20
023177483	Lowndes	Withlacoochee River at Mcmillan Rd	1989-2007	19

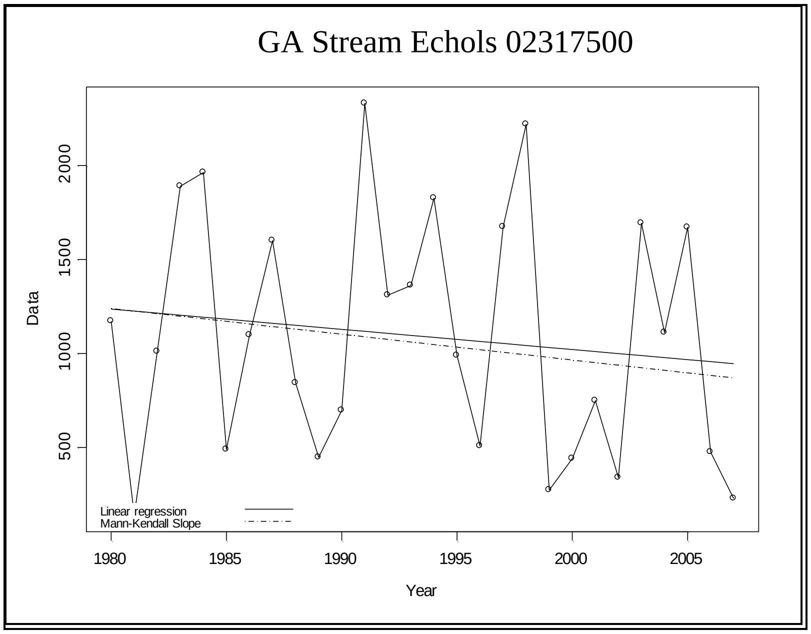
Appendix 13: USGS Georgia Stream Trend

Following is a summary of the trend detection plots of Georgia stream data from United States Geological Survey (USGS). Annual stream flow data (average) in cubic feet per second (cfs) were labeled as "data" (y-axes) and plotted against record year (x-axes).

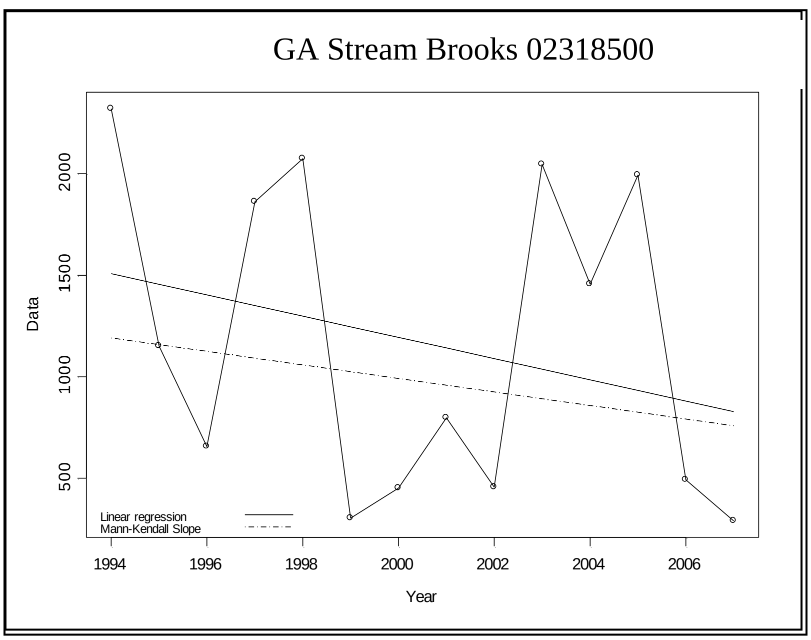


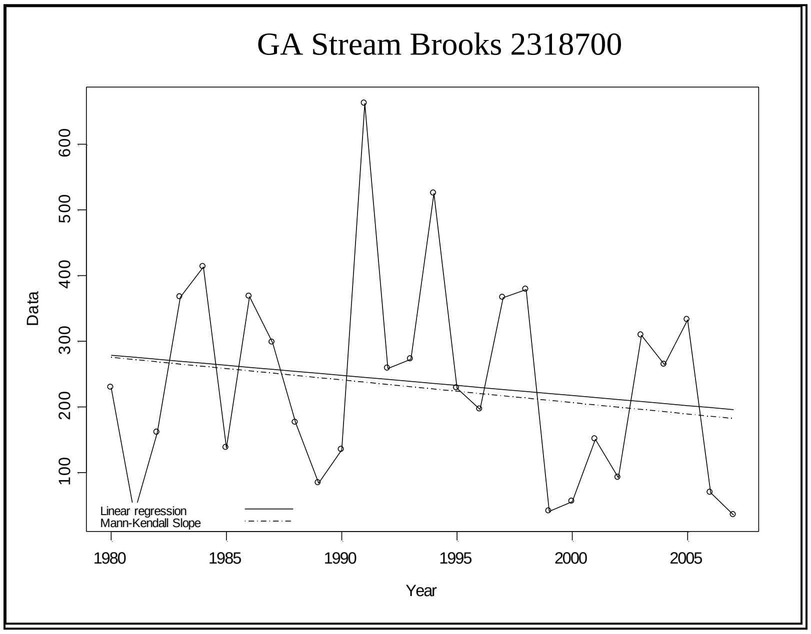
Data = Average annual streamflow (cfs)



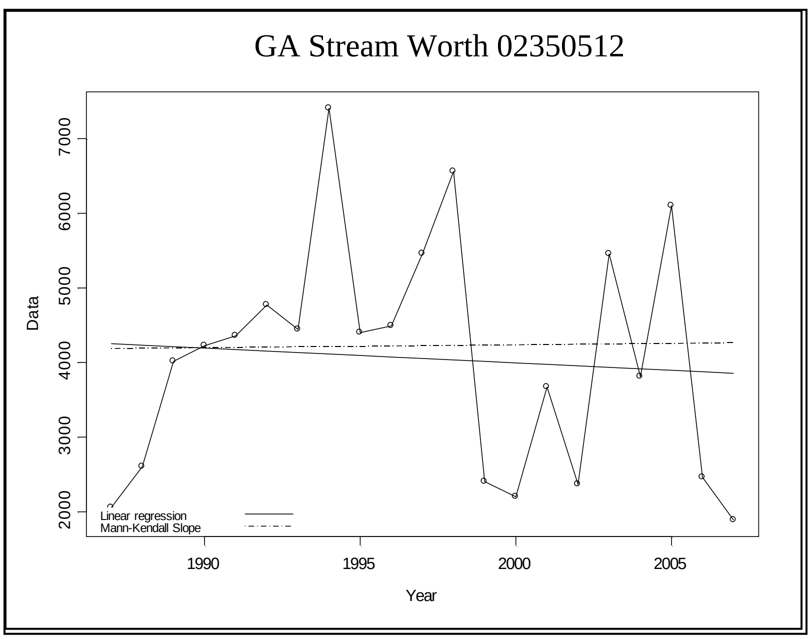


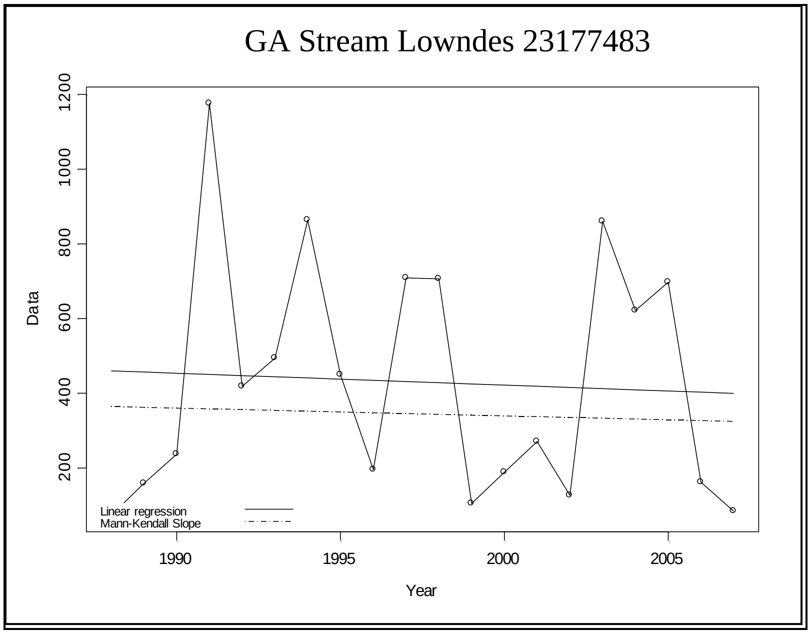
Data = Average annual streamflow (cfs)





Data = Average annual streamflow (cfs)





Data = Average annual streamflow (cfs)

Appendix 14: Florida Monthly Groundwater Withdrawals (PS and CII) 1980-2007

Tables of monthly groundwater withdrawals reported by public supply and commercial/indiustrial/institutional (includes power and mining) permittees in Georgia and Florida counties. Italicized values were estimated.

Alachua County Florida				
Year-Mo	PubSupp	Estim	CommIndPowMin	Estim
1978-1	486.2			
1978-2	416			
1978-3	535.7			
1978-4	650.1			
1978-5	613			
1978-6	528			
1978-7	550			
1978-8	547.6			
1978-9	613.2			
1978-10	637.9			
1978-11	573			
1978-12	472.3			
1980-1	513.4		*46.7*	1
1980-2	473.1		*46.7*	1
1980-3	536.8		*46.7*	1
1980-4	556.9		*46.7*	1
1980-5	590.3		*46.7*	1
1980-6	641		*46.7*	1
1980-7	601		*46.7*	1
1980-8	591.3		*46.7*	1
1980-9	566.5		*46.7*	1
1980-10	598		*46.7*	1
1980-11	507.5		*46.7*	1
1980-12	477.7		*46.7*	1
1981-1	517		*63.4*	1
1981-2	468.5		*63.4*	1
1981-3	549		*63.4*	1
1981-4	667		*63.4*	1
1981-5	795.6		*63.4*	1
1981-6	589.8		*63.4*	1
1981-7	589.8		*63.4*	1
1981-8	543.9		*63.4*	1
1981-9	579.4		*63.4*	1
1981-10	634.3		*63.4*	1
1981-11	506		*63.4*	1
1981-12	483.4		*63.4*	1
1982-1	468.4			
1982-2	440.3			
1982-3	654			
1982-4	518			
1982-5	595.7			
1982-6	614			
1982-7	471.7			
1982-8	627			
1982-9	521			
1982-10	523.5			
1982-11	612.7			
1982-12	441.3			
1983-1	360.6			

Alachua County Florida				
Year-Mo	PubSupp	Estim	CommIndPowMin	Estim
1983-2	475			
1983-3	598.8			
1983-4	509			
1983-5	551.8			
1983-6	503			
1983-7	536.5			
1983-8	556.4			
1983-9	541.2			
1983-10	542.7			
1983-11	619			
1983-12	485			
1984-1	553.8			
1984-2	532.9			
1984-3	573.9			
1984-4	609.5			
1984-5	727.2			
1984-6	643.7			
1984-7	579			
1984-8	631.5			
1984-9	660			
1984-10	669			
1984-11	547.2			
1984-12	530.6			
1985-1	607.6		*110*	1
1985-2	559		*110*	1
1985-3	701.6		*110*	1
1985-4	678.2		*110*	1
1985-5	787.7		*110*	1
1985-6	719.1		*110*	1
1985-7	629.6		*110*	1
1985-8	588.1		*110*	1
1985-9	599.8		*110*	1
1985-10	655		*110*	1
1985-11	584.3		*110*	1
1985-12	597.8		*110*	1
1986-1	*660*	4		
1986-2	*660*	4		
1986-3	*660*	4		
1986-4	*660*	4		
1986-5	*660*	4		
1986-6	*660*	4		
1986-7	*660*	4		
1986-8	*660*	4		
1986-9	*660*	4		
1986-10	*660*	4		
1986-11	*660*	4		
1986-12	*660*	4		
1987-1	581.4			
1987-2	529.9			

Alachua County Florida				
Year-Mo	PubSupp	Estim	CommIndPowMin	Estim
1987-3	596.5			
1987-4	698.6			
1987-5	743.4			
1987-6	746.2			
1987-7	666.9			
1987-8	739.2			
1987-9	700.2			
1987-10	763.5			
1987-11	620.2			
1987-12	599.7			
1988-1	*700*	4		
1988-2	*700*	4		
1988-3	*700*	4		
1988-4	*700*	4		
1988-5	*700*	4		
1988-6	*700*	4		
1988-7	*700*	4		
1988-8	*700*	4		
1988-9	*700*	4		
1988-10	*700*	4		
1988-11	*700*	4		
1988-12	*700*	4		
1989-1	662.5		*80.3*	2
1989-2	691.9		*83.1*	2
1989-3	723.9		*91.2*	2
1989-4	773.8		*106.3*	2
1989-5	860.7		*99.2*	2
1989-6	741.9		*87*	2
1989-7	699.3		*111.3*	2
1989-8	724.5		*101.1*	2
1989-9	670		*89.3*	2
1989-10	716.8		*91*	2
1989-11	665.3		*75.9*	2
1989-12	688.9		*78.4*	2
1990-1	663.4		139.1	
1990-2	602.6		98.7	
1990-3	730.8		100.9	
1990-4	727.5		111.5	
1990-5	798		156.6	
1990-6	710.8		158.1	
1990-7	699.4		153.1	
1990-8	717.9		168.5	
1990-9	722.4		159.7	
1990-10	709.1		171.5	
1990-11	650.6		142.2	
1990-12	630.2		138.3	
1991-1	614			
1991-2	572.6			
1991-3	628.5			
1991-4	662.5			
1991-5	667.5			
1991-6	655			
1991-7	650.7			
1991-8	669.7			
1991-9	720.1			
1991-10	713.5			

Alachua County Florida				
Year-Mo	PubSupp	Estim	CommIndPowMin	Estim
1991-11	668.5			
1991-12	638.8			
1992-1	625.2			
1992-2	695.5			
1992-3	652.7			
1992-4	707			
1992-5	758.3			
1992-6	665.6			
1992-7	753			
1992-8	689.5			
1992-9	679.3			
1992-10	705			
1992-11	628.6			
1992-12	611			
1993-1	619			
1993-2	570.4			
1993-3	646.4			
1993-4	704.4			
1993-5	842.2			
1993-6	781.7			
1993-7	727			
1993-8	854.2			
1993-9	757.3			
1993-10	742.5			
1993-11	662.1			
1993-12	639.8			
1994-1	647.7			
1994-2	615.4			
1994-3	741.9			
1994-4	785.6			
1994-5	853.3			
1994-6	715.4			
1994-7	725.1			
1994-8	722.6			
1994-9	738.6			
1994-10	725.4			
1994-11	686.7			
1994-12	637.4			
1995-1	650.5		124.9	
1995-2	623.8		136.4	
1995-3	726.1		136.4	
1995-4	747.4		134.4	
1995-5	879.2		190.8	
1995-6	782.6		180.7	
1995-7	763.7		192.7	
1995-8	749.8		191.6	
1995-9	793.2		186.8	
1995-10	736.5		169.8	
1995-11	672		146.5	
1995-12	663		138	
1996-1	685		135.4	
1996-2	684.9		140.5	
1996-3	704.2		122.7	
1996-4	790.6		145.1	
1996-5	914.9		170	
1996-6	758		166.1	

Alachua County Florida				
Year-Mo	PubSupp	Estim	CommIndPowMin	Estim
1996-7	838.5		216.4	
1996-8	801.3		166.6	
1996-9	750.6		172.2	
1996-10	728.1		164.4	
1996-11	715		146.9	
1996-12	663.1		145.9	
1997-1	681.8		115.2	
1997-2	640.4		135	
1997-3	759.8		125.3	
1997-4	761.4		161.6	
1997-5	804.6		156	
1997-6	701.3		147	
1997-7	752.6		174	
1997-8	796.2		149.4	
1997-9	932.2		159.3	
1997-10	837		148.4	
1997-11	712.5		114.3	
1997-12	669.1		115.3	
1998-1	688.3		112.7	
1998-2	611.9		124.2	
1998-3	703.4		82.7	
1998-4	852.3		132.6	
1998-5	1059.7		188.1	
1998-6	1039		198.1	
1998-7	896.8		188.7	
1998-8	836.7		166.5	
1998-9	795.9		146.8	
1998-10	876		133.5	
1998-11	851.1		124.5	
1998-12	815.6		121.1	
1999-1	774.6		112.7	
1999-2	701.9		124.2	
1999-3	865.8		82.7	
1999-4	1016		132.6	
1999-5	932.8		188.1	
1999-6	816.2		198.1	
1999-7	853.7		188.7	
1999-8	863.5		166.5	
1999-9	869.6		146.8	
1999-10	855		133.5	
1999-11	819		124.5	
1999-12	770.5		121.1	
2000-1	783.4		94.8	
2000-2	763.3		122.4	
2000-3	832.2		72.5	
2000-4	926.9		130.5	
2000-5	1121.6		157.4	
2000-6	807.9		178.3	
2000-7	842.8		229.4	
2000-8	863.7		228.7	
2000-9	798.5		119.6	
2000-10	931.4		180.7	
2000-11	868.3		166.7	
2000-12	806.1		159.1	
2001-1	819.9		176.3	
2001-2	771.4		151.4	

Alachua County Florida				
Year-Mo	PubSupp	Estim	CommIndPowMin	Estim
2001-3	805.5		174.5	
2001-4	942.1		116	
2001-5	1076.6		152.2	
2001-6	833.6		201.6	
2001-7	842.1		193.3	
2001-8	946		213.8	
2001-9	854		198.1	
2001-10	960.4		176	
2001-11	900.7		171.4	
2001-12	827.1		160	
2002-1	791		101.5	
2002-2	740.5		95	
2002-3	890.8		106.9	
2002-4	1023.7		136.4	
2002-5	1154.6		235.8	
2002-6	866.5		198.3	
2002-7	838.9		146.1	
2002-8	846.3		163.6	
2002-9	854.5		174.5	
2002-10	879.3		108.8	
2002-11	781.2		115.6	
2002-12	738.2		111.9	
2003-1	800.7		141	
2003-2	727.6		178.8	
2003-3	821.8		168.2	
2003-4	942.4		196.8	
2003-5	1084.8		235.7	
2003-6	862.4		208.2	
2003-7	984.4		206.1	
2003-8	826.8		205.4	
2003-9	957.9		232.8	
2003-10	957.3		184	
2003-11	898.6		162.9	
2003-12	834.7		150.2	
2004-1	844.7		152.4	
2004-2	761.3		149	
2004-3	949.1		113.5	
2004-4	1048.4		120.4	
2004-5	1171.4		158.9	
2004-6	967.5		174.5	
2004-7	961.9		207.1	
2004-8	905.1		173.6	
2004-9	852.5		187.5	
2004-10	892.4		151.6	
2004-11	899.1		121.7	
2004-12	833.6		143.9	
2005-1	751		197.1	
2005-2	709.2		193.8	
2005-3	756.7		209.4	
2005-4	803.3		207.8	
2005-5	884.1		187.9	
2005-6	774.7		227.5	
2005-7	872.8		246	
2005-8	919.5		243	
2005-9	977.3		272.6	
2005-10	918.2		230.4	

Alachua County Florida				
Year-Mo	PubSupp	Estim	CommIndPowMin	Estim
2005-11	864.7		217.9	
2005-12	779.5		195.8	
2006-1	774		163.6	
2006-2	718		168.8	
2006-3	868		162.6	
2006-4	968		160	
2006-5	1094		119.2	
2006-6	1016		127.8	
2006-7	974		97.7	
2006-8	941		97.9	
2006-9	919		97.8	
2006-10	1011		99.9	
2006-11	864		101.1	
2006-12	813		98.6	
2007-1	813.89		91.9	
2007-2	781.62		83.8	
2007-3	947.37		100.2	
2007-4	1027.75		102.7	
2007-5	1120.32		112.1	
2007-6	962.66		107	
2007-7	951.33		115.2	
2007-8	990.28		117	
2007-9	946.98		109.2	
2007-10	902.44		103.6	
2007-11	884.42		94.4	
2007-12	825.38		102.1	

[1] Monthly estimates based on annual USGS (R Marella) reported data

[2] Estimated Deerhaven (SRWMD) based on 10% less than 1994

[4] Simple Interpolated estimates

Baker County Florida					
Year	Mo	PubSupp	Estim	CommIndPowMin	Estim
1980	1	17.40		33.17	
1980	2	15.70		32.39	
1980	3	20.11		34.65	
1980	4	14.53		34.29	
1980	5	17.59		35.26	
1980	6	20.43		33.42	
1980	7	24.02		35.44	
1980	8	21.00		35.68	
1980	9	19.09		34.35	
1980	10	15.62		34.76	
1980	11	13.68		33.69	
1980	12	16.50		32.44	
1981	1	17.27		35.42	
1981	2	14.08		33.04	
1981	3	14.94		34.92	
1981	4	16.83		35.46	
1981	5	22.63		37.92	
1981	6	16.83		36.86	
1981	7	19.07		38.72	
1981	8	15.75		38.62	
1981	9	14.91		37.26	
1981	10	17.11		37.22	

Baker County Florida					
Year	Mo	PubSupp	Estim	CommIndPowMin	Estim
1981	11	13.62		35.06	
1981	12	14.60		36.02	
1982	1	21.08		36.32	
1982	2	13.41		33.50	
1982	3	15.28		36.22	
1982	4	14.31		36.07	
1982	5	20.03		38.22	
1982	6	16.80		36.37	
1982	7	16.46		36.42	
1982	8	16.83		36.32	
1982	9	16.62		35.37	
1982	10	14.85		35.52	
1982	11	13.26		34.37	
1982	12	13.80		34.02	
1983	1	14.90		34.81	
1983	2	13.20		31.22	
1983	3	13.70		33.41	
1983	4	13.20		32.84	
1983	5	17.90		34.21	
1983	6	15.40		33.54	
1983	7	16.10		34.11	
1983	8	18.10		34.21	
1983	9	16.00		32.94	
1983	10	16.30		33.61	
1983	11	13.60		34.64	
1983	12	15.90		39.54	
1984	1	16.60		43.58	
1984	2	14.90		36.10	
1984	3	15.40		40.59	
1984	4	15.30		39.32	
1984	5	19.40		43.43	
1984	6	18.10		31.87	
1984	7	14.20		41.19	
1984	8	18.20		40.78	
1984	9	15.90		42.07	
1984	10	14.10		41.19	
1984	11	12.30		37.39	
1984	12	16.20		39.49	
1985	1	16.30		32.67	
1985	2	16.60		29.39	
1985	3	14.80		31.19	
1985	4	17.10		38.86	
1985	5	23.70		32.72	
1985	6	22.00		31.02	
1985	7	19.20		33.37	
1985	8	18.80		37.19	
1985	9	17.70		31.19	
1985	10	17.90		33.66	
1985	11	17.20		30.42	
1985	12	18.50		29.39	
1986	1	18.80		34.62	
1986	2	15.30		36.07	
1986	3	17.60		28.99	
1986	4	21.70		34.22	
1986	5	22.70		33.02	

Baker County Florida					
Year	Mo	PubSupp	Estim	CommIndPowMin	Estim
1986	6	20.40		30.10	
1986	7	22.70		36.97	
1986	8	20.10		34.02	
1986	9	19.30		28.40	
1986	10	18.30		30.94	
1986	11	16.50		31.79	
1986	12	16.20		30.00	
1987	1	17.40		33.93	
1987	2	15.30		31.77	
1987	3	16.50		35.73	
1987	4	19.20		31.06	
1987	5	22.80		32.92	
1987	6	20.90		33.97	
1987	7	20.00		34.78	
1987	8	20.80		34.16	
1987	9	20.00		34.63	
1987	10	20.70		30.55	
1987	11	17.30		33.21	
1987	12	18.10		33.02	
1988	1	19.20		32.89	
1988	2	17.00		32.81	
1988	3	18.00		32.31	
1988	4	19.50		30.96	
1988	5	22.50		29.63	
1988	6	22.60		31.37	
1988	7	22.80		34.06	
1988	8	20.00		34.48	
1988	9	19.40		34.83	
1988	10	19.80		32.31	
1988	11	18.60		30.38	
1988	12	19.20		30.18	
1989	1	19.10		31.49	
1989	2	19.10		31.27	
1989	3	21.50		34.80	
1989	4	22.40		33.93	
1989	5	24.10		32.72	
1989	6	21.80		32.49	
1989	7	22.00		35.98	
1989	8	22.00		31.36	
1989	9	21.30		31.56	
1989	10	22.30		33.82	
1989	11	21.60		33.94	
1989	12	27.90		33.52	
1990	1	23.00		34.39	
1990	2	22.00		33.89	
1990	3	26.10		36.99	
1990	4	26.00		33.39	
1990	5	25.00		34.19	
1990	6	25.50		33.49	
1990	7	27.60		33.79	
1990	8	27.40		33.89	
1990	9	25.00		33.09	
1990	10	23.10		32.99	
1990	11	22.10		32.69	
1990	12	22.70		32.69	

Baker County Florida					
Year	Mo	PubSupp	Estim	CommIndPowMin	Estim
1991	1	23.56		21.55	
1991	2	24.56		31.18	
1991	3	23.07		37.84	
1991	4	22.56		38.07	
1991	5	24.03		38.83	
1991	6	22.80		41.01	
1991	7	23.10		33.52	
1991	8	22.97		38.31	
1991	9	22.98		34.16	
1991	10	22.38		44.74	
1991	11	22.23		43.66	
1991	12	22.75		30.38	
1992	1	21.83		32.76	
1992	2	20.19		36.14	
1992	3	21.87		38.86	
1992	4	23.26		31.32	
1992	5	26.67		37.17	
1992	6	23.60		27.64	
1992	7	24.09		33.90	
1992	8	21.83		37.57	
1992	9	23.96		37.83	
1992	10	21.30		32.68	
1992	11	21.00		27.84	
1992	12	20.72		20.82	
1993	1	20.14		26.77	
1993	2	17.79		24.67	
1993	3	19.86		28.64	
1993	4	21.26		30.29	
1993	5	28.44		33.43	
1993	6	24.38		34.78	
1993	7	24.08		33.88	
1993	8	26.24		32.90	
1993	9	23.81		33.22	
1993	10	24.00		32.61	
1993	11	24.00		32.61	
1993	12	25.00		32.61	
1994	1	18.51		27.32	
1994	2	18.39		28.89	
1994	3	21.64		27.28	
1994	4	24.38		27.11	
1994	5	26.76		28.76	
1994	6	23.00		29.46	
1994	7	20.98		25.94	
1994	8	21.70		24.37	
1994	9	21.68		24.81	
1994	10	20.65		23.83	
1994	11	20.86		27.68	
1994	12	18.59		25.58	
1995	1	20.38		26.61	
1995	2	18.22		20.08	
1995	3	18.97		25.85	
1995	4	24.50		26.65	
1995	5	27.70		29.39	
1995	6	26.13		26.06	
1995	7	24.08		28.18	

Baker County Florida					
Year	Mo	PubSupp	Estim	CommIndPowMin	Estim
1995	8	23.54		27.32	
1995	9	21.48		29.49	
1995	10	22.22		28.37	
1995	11	21.51		28.73	
1995	12	20.51		32.24	
1996	1	20.00		27.54	
1996	2	20.59		27.08	
1996	3	21.12		24.92	
1996	4	24.03		29.07	
1996	5	27.67		33.08	
1996	6	25.37		27.12	
1996	7	23.71		26.72	
1996	8	23.98		26.13	
1996	9	25.02		26.99	
1996	10	21.82		20.79	
1996	11	21.09		22.15	
1996	12	21.58		21.87	
1997	1	21.22		23.26	
1997	2	20.98		24.81	
1997	3	22.56		17.79	
1997	4	26.17		19.54	
1997	5	25.44		21.55	
1997	6	23.89		19.42	
1997	7	23.44		19.45	
1997	8	22.89		20.20	
1997	9	24.17		17.41	
1997	10	24.14		18.23	
1997	11	21.74		17.16	
1997	12	20.58		18.20	
1998	1	19.30		18.66	
1998	2	18.39		18.54	
1998	3	19.76		15.47	
1998	4	23.15		16.83	
1998	5	26.24		19.82	
1998	6	31.34		35.76	
1998	7	24.84		25.72	
1998	8	23.56		17.43	
1998	9	21.71		16.50	
1998	10	24.20		17.51	
1998	11	24.56		15.67	
1998	12	22.04		28.55	
1999	1	21.71		33.82	
1999	2	21.19		31.26	
1999	3	23.77		28.36	
1999	4	25.69		35.83	
1999	5	29.35		44.97	
1999	6	28.52		40.25	
1999	7	26.75		15.38	
1999	8	26.20		15.21	
1999	9	24.11		59.56	
1999	10	22.92		26.28	
1999	11	22.83		51.24	
1999	12	22.71		29.26	
2000	1	22.74		31.36	
2000	2	23.56		37.44	

Baker County Florida					
Year	Mo	PubSupp	Estim	CommIndPowMin	Estim
2000	3	25.05		37.71	
2000	4	27.51		30.92	
2000	5	36.42		50.71	
2000	6	34.02		50.12	
2000	7	28.09		22.10	
2000	8	25.60		20.68	
2000	9	22.37		22.27	
2000	10	24.41		26.50	
2000	11	25.58		41.55	
2000	12	24.11		21.89	
2001	1	23.68		45.22	
2001	2	23.76		32.28	
2001	3	21.65		34.30	
2001	4	29.11		39.53	
2001	5	32.49		60.10	
2001	6	32.22		30.11	
2001	7	29.31		27.65	
2001	8	37.11		26.47	
2001	9	24.19		28.03	
2001	10	26.40		27.13	
2001	11	22.89		43.22	
2001	12	23.79		24.09	
2002	**1**	24.06		38.18	
2002	**2**	26.17		36.68	
2002	**3**	26.84		31.74	
2002	**4**	29.88		33.57	
2002	**5**	34.33		34.95	
2002	**6**	29.88		21.77	
2002	**7**	28.39		31.88	
2002	**8**	24.94		23.00	
2002	**9**	22.44		35.45	
2002	**10**	25.38		31.26	
2002	**11**	24.26		27.43	
2002	**12**	22.19		26.09	
2003	1	21.68		27.80	
2003	2	22.01		22.68	
2003	3	21.16		18.63	
2003	4	22.44		31.94	
2003	5	26.60		27.10	
2003	6	21.98		31.81	
2003	7	21.10		27.37	
2003	8	21.04		31.68	
2003	9	23.86		41.22	
2003	10	21.68		18.24	
2003	11	21.28		13.05	
2003	12	19.76		15.91	
2004	1	19.61		15.44	
2004	2	19.03		16.43	
2004	3	23.80		13.97	
2004	4	27.82		22.39	
2004	5	32.07		31.66	
2004	6	22.56		30.26	
2004	7	23.32		18.88	
2004	8	21.98		17.61	
2004	9	21.07		14.01	

Baker County Florida					
Year	Mo	PubSupp	Estim	CommIndPowMin	Estim
2004	10	20.16		16.22	
2004	11	19.82		20.92	
2004	12	18.94		19.33	
2005	1	19.58		18.90	
2005	2	19.34		14.23	
2005	3	19.09		15.81	
2005	4	20.71		16.60	
2005	5	23.94		16.85	
2005	6	23.24		16.72	
2005	7	22.85		22.30	
2005	8	23.27		15.91	
2005	9	23.30		23.86	
2005	10	20.79		14.74	
2005	11	21.69		21.80	
2005	12	21.32		17.76	
2006	1	21.67		16.78	
2006	2	20.64		15.74	
2006	3	24.22		19.63	
2006	4	29.06		15.09	
2006	5	31.22		20.43	
2006	6	36.33		29.03	
2006	7	35.99		18.04	
2006	8	33.09		24.48	
2006	9	25.56		21.62	
2006	10	37.24		27.58	
2006	11	25.52		21.80	
2006	12	21.67		18.46	
2007	1	26.09		16.86	
2007	2	27.92		17.03	
2007	3	32.80		19.21	
2007	4	38.40		29.50	
2007	5	33.40		27.61	
2007	6	35.29		29.82	
2007	7	32.00		26.76	
2007	8	33.05		24.97	
2007	9	33.57		27.48	
2007	10	28.74		18.70	
2007	11	23.54		14.13	
2007	12	27.61		14.26	

Bradford County Florida					
Year	Mo	Pub Supp	Estim	CommIndPow Min	Estim
1980	1	30.2		90.6	
1980	2	27.9		78.3	
1980	3	29.2		85.1	
1980	4	28.8		84.3	
1980	5	32.4		89.9	
1980	6	35.1		88.9	
1980	7	35.2		96.8	
1980	8	34.9		101.8	
1980	9	34.6		98.5	
1980	10	33.2		94.3	
1980	11	30.4		88.5	
1980	12	32.1		90.3	
1981	1	*35.7*	4	89.9	
1981	2	*35.7*	4	87.9	
1981	3	*35.7*	4	90.5	
1981	4	*35.7*	4	90.1	
1981	5	*35.7*	4	91.0	
1981	6	*35.7*	4	90.6	
1981	7	*35.7*	4	91.6	
1981	8	*35.7*	4	91.9	
1981	9	*35.7*	4	91.5	
1981	10	*35.7*	4	92.4	
1981	11	*35.7*	4	92.0	
1981	12	*35.7*	4	93.0	
1982	1	*38.0*	4	93.0	
1982	2	*38.0*	4	91.1	
1982	3	*38.0*	4	93.6	
1982	4	*38.0*	4	93.1	
1982	5	*38.0*	4	94.2	
1982	6	*38.0*	4	93.7	
1982	7	*38.0*	4	94.7	
1982	8	*38.0*	4	95.0	
1982	9	*38.0*	4	94.5	
1982	10	*38.0*	4	95.6	
1982	11	*38.0*	4	95.1	
1982	12	*38.0*	4	96.1	
1983	1	*40.0*	4	97.0	
1983	2	*40.0*	4	94.9	
1983	3	*40.0*	4	97.5	
1983	4	*40.0*	4	97.1	
1983	5	*40.0*	4	98.1	
1983	6	*40.0*	4	97.7	
1983	7	*40.0*	4	98.7	
1983	8	*40.0*	4	98.9	
1983	9	*40.0*	4	98.5	
1983	10	*40.0*	4	99.5	
1983	11	*40.0*	4	99.1	
1983	12	*40.0*	4	101.4	
1984	1	*40.0*	4	108.8	
1984	2	*40.0*	4	103.8	
1984	3	*40.0*	4	109.9	
1984	4	*40.0*	4	108.8	
1984	5	*40.0*	4	112.9	
1984	6	*40.0*	4	100.4	
1984	7	*40.0*	4	111.0	
1984	8	*40.0*	4	110.7	
1984	9	*40.0*	4	113.2	
1984	10	*40.0*	4	111.9	
1984	11	*40.0*	4	109.0	
1984	12	*40.0*	4	112.7	
1985	1	42.3		108.0	
1985	2	34.3		94.7	
1985	3	41.5		105.7	
1985	4	39.1		108.9	
1985	5	45.4		106.9	
1985	6	44.9		100.6	

Bradford County Florida					
Year	Mo	Pub Supp	Estim	CommIndPow Min	Estim
1985	7	39.9		102.5	
1985	8	39.2		106.5	
1985	9	40.1		98.5	
1985	10	41.2		106.8	
1985	11	39.2		99.2	
1985	12	40.0		101.9	
1986	1	*41.2*	4	103.4	
1986	2	*41.2*	4	108.3	
1986	3	*41.2*	4	99.9	
1986	4	*41.2*	4	105.2	
1986	5	*41.2*	4	103.2	
1986	6	*41.2*	4	99.5	
1986	7	*41.2*	4	106.1	
1986	8	*41.2*	4	103.1	
1986	9	*41.2*	4	97.4	
1986	10	*41.2*	4	100.7	
1986	11	*41.2*	4	101.6	
1986	12	*41.2*	4	99.6	
1987	1	39.4		102.4	
1987	2	36.6		94.5	
1987	3	41.0		103.9	
1987	4	43.5		96.0	
1987	5	49.6		103.4	
1987	6	49.7		102.2	
1987	7	50.0		105.4	
1987	8	50.0		115.9	
1987	9	46.9		108.1	
1987	10	50.6		100.8	
1987	11	43.2		98.5	
1987	12	43.8		105.8	
1988	1	*50.3*	4	105.7	
1988	2	*50.3*	4	101.8	
1988	3	*50.3*	4	102.3	
1988	4	*50.3*	4	98.5	
1988	5	*50.3*	4	101.0	
1988	6	*50.3*	4	107.0	
1988	7	*50.3*	4	108.1	
1988	8	*50.3*	4	105.4	
1988	9	*50.3*	4	101.2	
1988	10	*50.3*	4	100.0	
1988	11	*50.3*	4	96.1	
1988	12	*50.3*	4	97.8	
1989	1	44.0		95.3	
1989	2	40.6		92.4	
1989	3	45.5		101.7	
1989	4	46.8		96.1	
1989	5	52.1		96.7	
1989	6	46.6		89.5	
1989	7	47.8		95.5	
1989	8	48.0		89.8	
1989	9	40.9		89.7	
1989	10	42.0		77.1	
1989	11	39.6		74.4	
1989	12	44.9		78.5	
1990	1	42.3		66.5	

Bradford County Florida					
Year	Mo	Pub Supp	Estim	CommIndPow Min	Estim
1990	2	37.9		77.3	
1990	3	47.3		87.0	
1990	4	49.2		81.4	
1990	5	55.4		81.5	
1990	6	52.8		74.9	
1990	7	50.1		83.6	
1990	8	49.5		80.6	
1990	9	50.1		74.7	
1990	10	50.6		70.3	
1990	11	49.7		68.3	
1990	12	51.4		68.4	
1991	1	49.2		51.0	
1991	2	46.0		63.5	
1991	3	52.3		71.1	
1991	4	51.4		71.1	
1991	5	48.1		70.7	
1991	6	46.2		73.4	
1991	7	49.1		64.6	
1991	8	47.7		70.8	
1991	9	49.1		66.1	
1991	10	46.9		78.3	
1991	11	44.8		77.8	
1991	12	44.0		62.2	
1992	1	44.5		67.2	
1992	2	40.3		70.9	
1992	3	42.8		73.7	
1992	4	44.6		65.2	
1992	5	48.8		72.2	
1992	6	46.6		61.1	
1992	7	50.3		68.1	
1992	8	46.1		72.6	
1992	9	44.0		72.7	
1992	10	44.7		65.6	
1992	11	41.3		61.3	
1992	12	41.8		52.1	
1993	1	42.1		61.2	
1993	2	38.3		59.6	
1993	3	44.2		63.6	
1993	4	43.1		66.2	
1993	5	54.2		68.8	
1993	6	49.0		71.2	
1993	7	58.0		69.5	
1993	8	51.3		68.3	
1993	9	45.6		68.3	
1993	10	45.5		68.3	
1993	11	41.0		68.3	
1993	12	41.7		68.2	
1994	1	40.5		62.8	
1994	2	38.3		65.6	
1994	3	41.1		64.5	
1994	4	46.4		64.2	
1994	5	54.1		65.0	
1994	6	44.2		66.0	
1994	7	43.0		61.9	
1994	8	44.0		60.0	

Bradford County Florida					
Year	Mo	Pub Supp	Estim	CommIndPow Min	Estim
1994	9	42.1		60.1	
1994	10	40.2		59.6	
1994	11	38.0		64.2	
1994	12	38.3		62.5	
1995	1	43.1		58.4	
1995	2	42.8		47.7	
1995	3	43.1		59.2	
1995	4	46.6		60.6	
1995	5	49.7		65.7	
1995	6	47.5		61.2	
1995	7	48.6		64.4	
1995	8	47.1		61.8	
1995	9	47.3		64.5	
1995	10	47.8		65.1	
1995	11	46.1		64.8	
1995	12	44.9		69.8	
1996	1	46.7		62.3	
1996	2	47.5		65.3	
1996	3	45.3		64.1	
1996	4	47.6		64.6	
1996	5	55.0		69.0	
1996	6	51.7		66.5	
1996	7	51.7		67.7	
1996	8	50.6		71.3	
1996	9	50.8		69.2	
1996	10	47.3		70.5	
1996	11	44.7		68.7	
1996	12	44.5		68.9	
1997	1	43.8		68.1	
1997	2	41.3		63.9	
1997	3	44.6		71.7	
1997	4	44.0		65.1	
1997	5	43.3		74.4	
1997	6	41.8		71.6	
1997	7	44.6		77.3	
1997	8	47.5		73.1	
1997	9	54.3		73.5	
1997	10	49.1		73.1	
1997	11	44.5		67.2	
1997	12	43.9		65.4	
1998	1	43.8		69.3	
1998	2	41.2		59.4	
1998	3	43.4		65.3	
1998	4	49.4		67.7	
1998	5	60.2		71.2	
1998	6	68.1		59.9	
1998	7	50.1		56.9	
1998	8	47.8		54.9	
1998	9	43.5		43.6	
1998	10	45.6		43.9	
1998	11	45.7		41.9	
1998	12	45.1		46.8	
1999	1	44.6		46.0	
1999	2	41.3		40.5	
1999	3	46.8		45.5	

Bradford County Florida					
Year	Mo	Pub Supp	Estim	CommIndPow Min	Estim
1999	4	54.0		49.8	
1999	5	53.3		50.6	
1999	6	51.4		49.1	
1999	7	50.1		43.8	
1999	8	48.3		58.0	
1999	9	46.6		50.9	
1999	10	47.8		51.7	
1999	11	45.4		51.9	
1999	12	44.0		54.2	
2000	1	45.2		54.8	
2000	2	44.4		55.4	
2000	3	47.0		53.2	
2000	4	46.7		60.2	
2000	5	60.6		70.1	
2000	6	50.1		70.4	
2000	7	43.5		77.7	
2000	8	46.7		81.5	
2000	9	45.0		83.1	
2000	10	50.1		83.2	
2000	11	47.2		83.3	
2000	12	46.3		70.8	
2001	1	45.7		57.2	
2001	2	44.1		42.4	
2001	3	43.9		49.9	
2001	4	51.1		46.7	
2001	5	60.4		60.3	
2001	6	50.0		54.3	
2001	7	45.7		63.3	
2001	8	48.6		55.3	
2001	9	44.4		45.9	
2001	10	47.4		55.6	
2001	11	45.7		53.1	
2001	12	43.9		57.9	
2002	1	45.0		57.6	
2002	2	42.2		48.2	
2002	3	43.9		53.1	
2002	4	50.6		68.2	
2002	5	55.0		53.2	
2002	6	46.7		48.8	
2002	7	46.3		50.6	
2002	8	44.3		65.2	
2002	9	43.2		55.5	
2002	10	42.4		54.4	
2002	11	41.2		53.2	
2002	12	41.5		62.2	
2003	1	45.6		61.1	
2003	2	38.9		52.3	
2003	3	40.7		53.3	
2003	4	45.5		54.3	
2003	5	51.2		53.2	
2003	6	43.1		49.3	
2003	7	44.2		54.7	
2003	8	44.3		53.5	
2003	9	40.1		55.9	
2003	10	41.8		52.5	

Bradford County Florida					
Year	Mo	Pub Supp	Estim	CommIndPow Min	Estim
2003	11	40.7		50.9	
2003	12	42.5		52.2	
2004	1	43.0		53.2	
2004	2	39.3		48.8	
2004	3	44.6		57.0	
2004	4	52.8		53.0	
2004	5	55.9		56.4	
2004	6	47.1		57.0	
2004	7	45.1		66.9	
2004	8	45.6		73.6	
2004	9	43.8		48.5	
2004	10	46.5		50.2	
2004	11	45.7		48.9	
2004	12	46.0		46.4	
2005	1	46.4		50.7	
2005	2	45.4		47.7	
2005	3	44.5		51.8	
2005	4	48.8		45.3	
2005	5	48.0		46.8	
2005	6	44.6		49.7	
2005	7	48.3		53.4	
2005	8	48.6		51.3	
2005	9	49.2		59.9	
2005	10	47.1		51.2	
2005	11	46.6		43.7	
2005	12	43.6		42.6	
2006	1	43.2		41.0	
2006	2	43.1		45.6	
2006	3	46.7		47.8	
2006	4	50.6		47.5	
2006	5	54.2		52.1	
2006	6	49.9		55.7	
2006	7	49.6		45.5	
2006	8	50.4		47.1	
2006	9	48.4		45.9	
2006	10	51.0		49.0	
2006	11	45.6		50.2	
2006	12	44.3		51.8	
2007	1	42.4		41.2	
2007	2	44.2		36.3	
2007	3	48.1		49.6	
2007	4	53.4		43.0	
2007	5	62.9		55.4	
2007	6	51.9		58.4	
2007	7	50.0		46.3	
2007	8	52.5		40.4	
2007	9	48.1		34.7	
2007	10	45.8		34.4	
2007	11	47.4		32.0	
2007	12	45.0		31.2	

[1] Monthly estimates based on annual USGS (R Marella) reported data

Bradford County Florida

Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1980	1	52.7		8.24	1
1980	2	52		8.24	1
1980	3	57.9		8.24	1
1980	4	57		8.24	1
1980	5	61.6		8.24	1
1980	6	71.1		8.24	1
1980	7	67.8		8.24	1
1980	8	67.2		8.24	1
1980	9	60.3		8.24	1
1980	10	61.6		8.24	1
1980	11	54.3		8.24	1
1980	12	57		8.24	1
1981	1	*59*	4		
1981	2	*59*	4		
1981	3	*59*	4		
1981	4	*59*	4		
1981	5	*59*	4		
1981	6	*59*	4		
1981	7	*59*	4		
1981	8	*59*	4		
1981	9	*59*	4		
1981	10	*59*	4		
1981	11	*59*	4		
1981	12	*59*	4		
1982	1	*59*	4		
1982	2	*59*	4		
1982	3	*59*	4		
1982	4	*59*	4		
1982	5	*59*	4		
1982	6	*59*	4		
1982	7	*59*	4		
1982	8	*59*	4		
1982	9	*59*	4		
1982	10	*59*	4		
1982	11	*59*	4		
1982	12	*59*	4		
1983	1	*59*	4		
1983	2	*59*	4		
1983	3	*59*	4		
1983	4	*59*	4		
1983	5	*59*	4		
1983	6	*59*	4		
1983	7	*59*	4		
1983	8	*59*	4		
1983	9	*59*	4		
1983	10	*59*	4		
1983	11	*59*	4		
1983	12	*59*	4		
1984	1	*59*	4		
1984	2	*59*	4		
1984	3	*59*	4		
1984	4	*59*	4		
1984	5	*59*	4		
1984	6	*59*	4		
1984	7	*59*	4		
1984	8	*59*	4		
1984	9	*59*	4		

Bradford County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1984	10	59	4		
1984	11	59	4		
1984	12	59	1		
1985	1	59.7		3.20	
1985	2	48.6		3.30	
1985	3	64		2.50	
1985	4	67.5		2.60	
1985	5	75.4		2.80	
1985	6	66.1		2.50	
1985	7	59.2		2.40	
1985	8	56.8		2.70	
1985	9	54.9		2.10	
1985	10	57.6		2.40	
1985	11	54.9		3.20	
1985	12	58.8		2.90	
1986	1	68	3	2.50	4
1986	2	68	3	2.50	4
1986	3	68	3	2.50	4
1986	4	68	3	2.50	4
1986	5	68	3	2.50	4
1986	6	68	3	2.50	4
1986	7	68	3	2.50	4
1986	8	68	3	2.50	4
1986	9	68	3	2.50	4
1986	10	68	3	2.50	4
1986	11	68	3	2.50	4
1986	12	68	3	2.50	4
1987	1	51.4		2.50	4
1987	2	45		2.50	4
1987	3	60		2.50	4
1987	4	73		2.50	4
1987	5	82.1		2.50	4
1987	6	81.4		2.50	4
1987	7	76.9		2.50	4
1987	8	75.8		2.50	4
1987	9	68.5		2.50	4
1987	10	76.6		2.50	4
1987	11	60.5		2.50	4
1987	12	60.8		2.50	4
1988	1	72	3	2.50	4
1988	2	72	3	2.50	4
1988	3	72	3	2.50	4
1988	4	72	3	2.50	4
1988	5	72	3	2.50	4
1988	6	72	3	2.50	4
1988	7	72	3	2.50	4
1988	8	72	3	2.50	4
1988	9	72	3	2.50	4
1988	10	72	3	2.50	4
1988	11	72	3	2.50	4
1988	12	72	3	2.50	
1989	1	71.2		2.50	
1989	2	72.1		2.50	
1989	3	84.6		2.90	
1989	4	87.4		2.30	
1989	5	93.6		2.60	

Bradford County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1989	6	97.7		2.40	
1989	7	93.1		2.10	
1989	8	84.2		2.10	
1989	9	65.9		1.70	
1989	10	76.9		1.70	
1989	11	86.3		1.80	
1989	12	84.4		1.80	
1990	1	76		0.70	
1990	2	66.3		0.70	
1990	3	88.9		0.70	
1990	4	84.8		0.80	
1990	5	103.6		1.00	
1990	6	96.7		1.10	
1990	7	107.9		1.00	
1990	8	95.8		0.80	
1990	9	93.3		0.90	
1990	10	89.2		1.00	
1990	11	83		1.00	
1990	12	79.6		1.10	
1991	1	73.1			
1991	2	71.3			
1991	3	79.6			
1991	4	78			
1991	5	81.2			
1991	6	81.1			
1991	7	81.5			
1991	8	82.2			
1991	9	81.2			
1991	10	82.4			
1991	11	78.3			
1991	12	79.4			
1992	1	76.8			
1992	2	70.2			
1992	3	82.1			
1992	4	90.1			
1992	5	102			
1992	6	88.4			
1992	7	98.7			
1992	8	91.8			
1992	9	97.8			
1992	10	93.3			
1992	11	83.4			
1992	12	78.5			
1993	1	77.2			
1993	2	68.9			
1993	3	83.2			
1993	4	88.5			
1993	5	118.4			
1993	6	103.5			
1993	7	97.3			
1993	8	106.4			
1993	9	89.3			
1993	10	91.7			
1993	11	82.9			
1993	12	83.2			
1994	1	76.2			

Bradford County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1994	2	66.2			
1994	3	79.8			
1994	4	88.3			
1994	5	99.3			
1994	6	78.2			
1994	7	87.2			
1994	8	84.4			
1994	9	80.3			
1994	10	76			
1994	11	74			
1994	12	72			
1995	1	74		6.30	
1995	2	71.2		6.10	
1995	3	86.4		5.70	
1995	4	88		6.80	
1995	5	106.7		7.40	
1995	6	95.8		7.50	
1995	7	95.7		8.10	
1995	8	93.4		6.40	
1995	9	88.6		6.40	
1995	10	86.2		7.00	
1995	11	80		7.50	
1995	12	80.4		7.60	
1996	1	86.3		7.10	
1996	2	85.7		6.60	
1996	3	86.6		7.10	
1996	4	95.7		6.50	
1996	5	120.2		6.70	
1996	6	102		6.10	
1996	7	108.2		6.20	
1996	8	101.4		6.50	
1996	9	95.5		6.00	
1996	10	91		5.60	
1996	11	88.4		5.40	
1996	12	87		5.90	
1997	1	85.2		5.76	
1997	2	76.8		5.58	
1997	3	96.6		6.01	
1997	4	95.5		5.94	
1997	5	105.5		6.52	
1997	6	92		6.79	
1997	7	108.3		6.69	
1997	8	110.2		6.74	
1997	9	112		6.49	
1997	10	103.4		6.40	
1997	11	84.6		6.54	
1997	12	83.3		6.64	
1998	1	85.2		6.42	
1998	2	73.9		5.62	
1998	3	86.8		6.31	
1998	4	103.5		5.79	
1998	5	130		8.13	
1998	6	147.5		9.96	
1998	7	115		7.63	
1998	8	106		6.14	
1998	9	98.9		5.46	

Bradford County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1998	10	107.4		6.19	
1998	11	104		6.05	
1998	12	102.6		6.14	
1999	1	91.2		6.84	
1999	2	88.3		6.10	
1999	3	107.9		6.29	
1999	4	126.4		6.84	
1999	5	125.7		7.83	
1999	6	110.2		6.90	
1999	7	109.4		7.43	
1999	8	109.6		8.11	
1999	9	112.1		8.52	
1999	10	110.4		8.58	
1999	11	105.1		7.77	
1999	12	100.4		7.55	
2000	1	96.2		9.10	
2000	2	91.2		9.40	
2000	3	109.7		10.20	
2000	4	110.2		9.60	
2000	5	145.1		10.70	
2000	6	127.8		10.20	
2000	7	124.2		10.70	
2000	8	116.2		10.70	
2000	9	99.2		9.40	
2000	10	113.6		9.70	
2000	11	107.1		9.80	
2000	12	99.7		10.20	
2001	1	95.8		7.21	
2001	2	92.8		6.89	
2001	3	107.3		6.79	
2001	4	110.2		7.64	
2001	5	129.9		8.45	
2001	6	110.9		8.07	
2001	7	109		8.75	
2001	8	113.4		10.19	
2001	9	98.3		10.52	
2001	10	99.7		9.74	
2001	11	103		9.21	
2001	12	101.2		9.09	
2002	1	99.3		14.04	
2002	2	90.1		12.74	
2002	3	104.4		14.10	
2002	4	108.8		14.19	
2002	5	123.5		16.22	
2002	6	116.4		12.73	
2002	7	112.1		13.68	
2002	8	108.9		13.61	
2002	9	109		12.73	
2002	10	111.3		13.92	
2002	11	96.1		11.59	
2002	12	93.9		11.27	
2003	1	103.6		9.92	
2003	2	85		7.70	
2003	3	96.5		8.43	
2003	4	102.3		9.59	
2003	5	125.7		9.83	

Bradford County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2003	6	107		9.28	
2003	7	111.9		9.86	
2003	8	105.6		7.40	
2003	9	102.4		6.47	
2003	10	107.1		7.03	
2003	11	96.3		6.02	
2003	12	102.2		9.07	
2004	1	101.3		10.32	
2004	2	92.9		8.42	
2004	3	106.7		7.55	
2004	4	112		7.27	
2004	5	129.4		7.01	
2004	6	112.4		6.41	
2004	7	109.1		7.87	
2004	8	104.7		5.63	
2004	9	99.7		5.30	
2004	10	105.5		6.23	
2004	11	101.8		3.65	
2004	12	103.9		5.25	
2005	1	100		5.90	
2005	2	93		5.50	
2005	3	101.5		5.90	
2005	4	102.5		5.10	
2005	5	112		5.50	
2005	6	106.6		5.80	
2005	7	118.5		6.60	
2005	8	118.4		6.60	
2005	9	119.4		6.90	
2005	10	115.6		6.00	
2005	11	111.6		10.00	
2005	12	106.7		11.20	
2006	1	100.0		7.03	
2006	2	88.9		8.98	
2006	3	111.1		7.00	
2006	4	112.4		6.45	
2006	5	124.9		5.10	
2006	6	126.4		7.00	
2006	7	127.8		7.80	
2006	8	126.2		6.84	
2006	9	116.4		6.24	
2006	10	122.6		5.72	
2006	11	102.0		5.50	
2006	12	104.8		5.30	
2007	1	101.43		5.62	
2007	2	97.48		5.41	
2007	3	125.43		6.00	
2007	4	134.46		7.15	
2007	5	140.89		8.72	
2007	6	130.87		7.17	
2007	7	138.70		7.27	
2007	8	138.56		6.92	
2007	9	149.40		10.98	
2007	10	125.99		7.08	
2007	11	118.41		7.18	
2007	12	74.29		5.28	

[1] Monthly estimates based on annual USGS (R Marella) reported data

Colombia County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1980	1	52.7		8.24	1
1980	2	52		8.24	1
1980	3	57.9		8.24	1
1980	4	57		8.24	1
1980	5	61.6		8.24	1
1980	6	71.1		8.24	1
1980	7	67.8		8.24	1
1980	8	67.2		8.24	1
1980	9	60.3		8.24	1
1980	10	61.6		8.24	1
1980	11	54.3		8.24	1
1980	12	57		8.24	1
1981	1	*59*	4		
1981	2	*59*	4		
1981	3	*59*	4		
1981	4	*59*	4		
1981	5	*59*	4		
1981	6	*59*	4		
1981	7	*59*	4		
1981	8	*59*	4		
1981	9	*59*	4		
1981	10	*59*	4		
1981	11	*59*	4		
1981	12	*59*	4		
1982	1	*59*	4		
1982	2	*59*	4		
1982	3	*59*	4		
1982	4	*59*	4		
1982	5	*59*	4		
1982	6	*59*	4		
1982	7	*59*	4		
1982	8	*59*	4		
1982	9	*59*	4		
1982	10	*59*	4		
1982	11	*59*	4		
1982	12	*59*	4		
1983	1	*59*	4		
1983	2	*59*	4		
1983	3	*59*	4		
1983	4	*59*	1		
1983	5	*59*	1		
1983	6	*59*	1		
1983	7	*59*	1		
1983	8	*59*	1		
1983	9	*59*	1		
1983	10	*59*	1		
1983	11	*59*	1		
1983	12	*59*	1		
1984	1	*59*	4		
1984	2	*59*	4		
1984	3	*59*	4		
1984	4	*59*	4		

Colombia County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1984	5	*59*	4		
1984	6	*59*	4		
1984	7	*59*	4		
1984	8	*59*	4		
1984	9	*59*	4		
1984	10	*59*	4		
1984	11	*59*	4		
1984	12	*59*	4		
1985	1	59.7		3.20	
1985	2	48.6		3.30	
1985	3	64		2.50	
1985	4	67.5		2.60	
1985	5	75.4		2.80	
1985	6	66.1		2.50	
1985	7	59.2		2.40	
1985	8	56.8		2.70	
1985	9	54.9		2.10	
1985	10	57.6		2.40	
1985	11	54.9		3.20	
1985	12	58.8		2.90	
1986	1	*68*	3	*2.50*	4
1986	2	*68*	3	*2.50*	4
1986	3	*68*	3	*2.50*	4
1986	4	*68*	3	*2.50*	4
1986	5	*68*	3	*2.50*	4
1986	6	*68*	3	*2.50*	4
1986	7	*68*	3	*2.50*	4
1986	8	*68*	3	*2.50*	4
1986	9	*68*	3	*2.50*	4
1986	10	*68*	3	*2.50*	4
1986	11	*68*	3	*2.50*	4
1986	12	*68*	3	*2.50*	4
1987	1	51.4		*2.50*	4
1987	2	45		*2.50*	4
1987	3	60		*2.50*	4
1987	4	73		*2.50*	4
1987	5	82.1		*2.50*	4
1987	6	81.4		*2.50*	4
1987	7	76.9		*2.50*	4
1987	8	75.8		*2.50*	4
1987	9	68.5		*2.50*	4
1987	10	76.6		*2.50*	4
1987	11	60.5		*2.50*	4
1987	12	60.8		*2.50*	4
1988	1	*72*	3	*2.50*	4
1988	2	*72*	3	*2.50*	4
1988	3	*72*	3	*2.50*	4
1988	4	*72*	3	*2.50*	4
1988	5	*72*	3	*2.50*	4
1988	6	*72*	3	*2.50*	4
1988	7	*72*	3	*2.50*	4
1988	8	*72*	3	*2.50*	4
1988	9	*72*	3	*2.50*	4
1988	10	*72*	3	*2.50*	4
1988	11	*72*	3	*2.50*	4
1988	12	*72*		*2.50*	

Colombia County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1989	1	71.2		2.50	
1989	2	72.1		2.50	
1989	3	84.6		2.90	
1989	4	87.4		2.30	
1989	5	93.6		2.60	
1989	6	97.7		2.40	
1989	7	93.1		2.10	
1989	8	84.2		2.10	
1989	9	65.9		1.70	
1989	10	76.9		1.70	
1989	11	86.3		1.80	
1989	12	84.4		1.80	
1990	1	76		0.70	
1990	2	66.3		0.70	
1990	3	88.9		0.70	
1990	4	84.8		0.80	
1990	5	103.6		1.00	
1990	6	96.7		1.10	
1990	7	107.9		1.00	
1990	8	95.8		0.80	
1990	9	93.3		0.90	
1990	10	89.2		1.00	
1990	11	83		1.00	
1990	12	79.6		1.10	
1991	1	73.1			
1991	2	71.3			
1991	3	79.6			
1991	4	78			
1991	5	81.2			
1991	6	81.1			
1991	7	81.5			
1991	8	82.2			
1991	9	81.2			
1991	10	82.4			
1991	11	78.3			
1991	12	79.4			
1992	1	76.8			
1992	2	70.2			
1992	3	82.1			
1992	4	90.1			
1992	5	102			
1992	6	88.4			
1992	7	98.7			
1992	8	91.8			
1992	9	97.8			
1992	10	93.3			
1992	11	83.4			
1992	12	78.5			
1993	1	77.2			
1993	2	68.9			
1993	3	83.2			
1993	4	88.5			
1993	5	118.4			
1993	6	103.5			
1993	7	97.3			
1993	8	106.4			

Colombia County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1993	9	89.3			
1993	10	91.7			
1993	11	82.9			
1993	12	83.2			
1994	1	76.2			
1994	2	66.2			
1994	3	79.8			
1994	4	88.3			
1994	5	99.3			
1994	6	78.2			
1994	7	87.2			
1994	8	84.4			
1994	9	80.3			
1994	10	76			
1994	11	74			
1994	12	72			
1995	1	74		6.30	
1995	2	71.2		6.10	
1995	3	86.4		5.70	
1995	4	88		6.80	
1995	5	106.7		7.40	
1995	6	95.8		7.50	
1995	7	95.7		8.10	
1995	8	93.4		6.40	
1995	9	88.6		6.40	
1995	10	86.2		7.00	
1995	11	80		7.50	
1995	12	80.4		7.60	
1996	1	86.3		7.10	
1996	2	85.7		6.60	
1996	3	86.6		7.10	
1996	4	95.7		6.50	
1996	5	120.2		6.70	
1996	6	102		6.10	
1996	7	108.2		6.20	
1996	8	101.4		6.50	
1996	9	95.5		6.00	
1996	10	91		5.60	
1996	11	88.4		5.40	
1996	12	87		5.90	
1997	1	85.2		5.76	
1997	2	76.8		5.58	
1997	3	96.6		6.01	
1997	4	95.5		5.94	
1997	5	105.5		6.52	
1997	6	92		6.79	
1997	7	108.3		6.69	
1997	8	110.2		6.74	
1997	9	112		6.49	
1997	10	103.4		6.40	
1997	11	84.6		6.54	
1997	12	83.3		6.64	
1998	1	85.2		6.42	
1998	2	73.9		5.62	
1998	3	86.8		6.31	
1998	4	103.5		5.79	

Colombia County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1998	5	130		8.13	
1998	6	147.5		9.96	
1998	7	115		7.63	
1998	8	106		6.14	
1998	9	98.9		5.46	
1998	10	107.4		6.19	
1998	11	104		6.05	
1998	12	102.6		6.14	
1999	1	91.2		6.84	
1999	2	88.3		6.10	
1999	3	107.9		6.29	
1999	4	126.4		6.84	
1999	5	125.7		7.83	
1999	6	110.2		6.90	
1999	7	109.4		7.43	
1999	8	109.6		8.11	
1999	9	112.1		8.52	
1999	10	110.4		8.58	
1999	11	105.1		7.77	
1999	12	100.4		7.55	
2000	1	96.2		9.10	
2000	2	91.2		9.40	
2000	3	109.7		10.20	
2000	4	110.2		9.60	
2000	5	145.1		10.70	
2000	6	127.8		10.20	
2000	7	124.2		10.70	
2000	8	116.2		10.70	
2000	9	99.2		9.40	
2000	10	113.6		9.70	
2000	11	107.1		9.80	
2000	12	99.7		10.20	
2001	1	95.8		7.21	
2001	2	92.8		6.89	
2001	3	107.3		6.79	
2001	4	110.2		7.64	
2001	5	129.9		8.45	
2001	6	110.9		8.07	
2001	7	109		8.75	
2001	8	113.4		10.19	
2001	9	98.3		10.52	
2001	10	99.7		9.74	
2001	11	103		9.21	
2001	12	101.2		9.09	
2002	1	99.3		14.04	
2002	2	90.1		12.74	
2002	3	104.4		14.10	
2002	4	108.8		14.19	
2002	5	123.5		16.22	
2002	6	116.4		12.73	
2002	7	112.1		13.68	
2002	8	108.9		13.61	
2002	9	109		12.73	
2002	10	111.3		13.92	
2002	11	96.1		11.59	
2002	12	93.9		11.27	

Colombia County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2003	1	103.6		9.92	
2003	2	85		7.70	
2003	3	96.5		8.43	
2003	4	102.3		9.59	
2003	5	125.7		9.83	
2003	6	107		9.28	
2003	7	111.9		9.86	
2003	8	105.6		7.40	
2003	9	102.4		6.47	
2003	10	107.1		7.03	
2003	11	96.3		6.02	
2003	12	102.2		9.07	
2004	1	101.3		10.32	
2004	2	92.9		8.42	
2004	3	106.7		7.55	
2004	4	112		7.27	
2004	5	129.4		7.01	
2004	6	112.4		6.41	
2004	7	109.1		7.87	
2004	8	104.7		5.63	
2004	9	99.7		5.30	
2004	10	105.5		6.23	
2004	11	101.8		3.65	
2004	12	103.9		5.25	
2005	1	100		5.90	
2005	2	93		5.50	
2005	3	101.5		5.90	
2005	4	102.5		5.10	
2005	5	112		5.50	
2005	6	106.6		5.80	
2005	7	118.5		6.60	
2005	8	118.4		6.60	
2005	9	119.4		6.90	
2005	10	115.6		6.00	
2005	11	111.6		10.00	
2005	12	106.7		11.20	
2006	1	100.0		7.03	
2006	2	88.9		8.98	
2006	3	111.1		7.00	
2006	4	112.4		6.45	
2006	5	124.9		5.10	
2006	6	126.4		7.00	
2006	7	127.8		7.80	
2006	8	126.2		6.84	
2006	9	116.4		6.24	
2006	10	122.6		5.72	
2006	11	102.0		5.50	
2006	12	104.8		5.30	
2007	1	101.43		5.62	
2007	2	97.48		5.41	
2007	3	125.43		6.00	
2007	4	134.46		7.15	
2007	5	140.89		8.72	
2007	6	130.87		7.17	
2007	7	138.70		7.27	
2007	8	138.56		6.92	

Colombia County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2007	9	149.40		10.98	
2007	10	125.99		7.08	
2007	11	118.41		7.18	
2007	12	74.29		5.28	

[1] Monthly estimates based on annual USGS (R Marella) reported data

Dixie County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1980	1	15.1		13.1	[1]
1980	2	15.6		13.1	[1]
1980	3	16.4		13.1	[1]
1980	4	15.9		13.1	[1]
1980	5	17.4		13.1	[1]
1980	6	16.9		13.1	[1]
1980	7	16.9		13.1	[1]
1980	8	17.9		13.1	[1]
1980	9	16.3		13.1	[1]
1980	10	16.8		13.1	[1]
1980	11	16.8		13.1	[1]
1980	12	16.4		13.1	[1]
1981	1	*18*	[4]	10.7	[1]
1981	2	*18*	[4]	10.7	[1]
1981	3	*18*	[4]	10.7	[1]
1981	4	*18*	[4]	10.7	[1]
1981	5	*18*	[4]	10.7	[1]
1981	6	*18*	[4]	10.7	[1]
1981	7	*18*	[4]	10.7	[1]
1981	8	*18*	[4]	10.7	[1]
1981	9	*18*	[4]	10.7	[1]
1981	10	*18*	[4]	10.7	[1]
1981	11	*18*	[4]	10.7	[1]
1981	12	*18*	[4]	10.7	[1]
1982	1	*18*	[4]		
1982	2	*18*	[4]		
1982	3	*18*	[4]		
1982	4	*18*	[4]		
1982	5	*18*	[4]		
1982	6	*18*	[4]		
1982	7	*18*	[4]		
1982	8	*18*	[4]		
1982	9	*18*	[4]		
1982	10	*18*	[4]		
1982	11	*18*	[4]		
1982	12	*18*	[4]		
1983	1	*18*	[4]		
1983	2	*18*	[4]		
1983	3	*18*	[4]		
1983	4	*18*	[4]		
1983	5	*18*	[4]		
1983	6	*18*	[4]		
1983	7	*18*	[4]		
1983	8	*18*	[4]		
1983	9	*18*	[4]		
1983	10	*18*	[4]		

Dixie County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1983	11	*18*	4		
1983	12	*18*	4		
1984	1	*18*	4		
1984	2	*18*	4		
1984	3	*18*	4		
1984	4	*18*	4		
1984	5	*18*	4		
1984	6	*18*	4		
1984	7	*18*	4		
1984	8	*18*	4		
1984	9	*18*	4		
1984	10	*18*	4		
1984	11	*18*	4		
1984	12	*18*	4		
1985	1	20.9		26.5	
1985	2	16.7		26.2	
1985	3	20		29.2	
1985	4	19.2		30.4	
1985	5	25.3		32.4	
1985	6	22.5		29.2	
1985	7	18.7		28.3	
1985	8	17.8		27.5	
1985	9	17.3		27.9	
1985	10	17.9		28.4	
1985	11	18.2		27.4	
1985	12	17.8		28.0	
1986	1	*19*	4	*27.0*	4
1986	2	*19*	4	*27.0*	4
1986	3	*19*	4	*27.0*	4
1986	4	*19*	4	*27.0*	4
1986	5	*19*	4	*27.0*	4
1986	6	*19*	4	*27.0*	4
1986	7	*19*	4	*27.0*	4
1986	8	*19*	4	*27.0*	4
1986	9	*19*	4	*27.0*	4
1986	10	*19*	4	*27.0*	4
1986	11	*19*	4	*27.0*	4
1986	12	*19*	4	*27.0*	4
1987	1	19.3		*27.0*	4
1987	2	18		*27.0*	4
1987	3	19.3		*27.0*	4
1987	4	19.8		*27.0*	4
1987	5	21.3		*27.0*	4
1987	6	21.1		*27.0*	4
1987	7	20		*27.0*	4
1987	8	21.7		*27.0*	4
1987	9	18.9		*27.0*	4
1987	10	21.2		*27.0*	4
1987	11	17.2		*27.0*	4
1987	12	17.8		*27.0*	4
1988	1	18.5		*27.0*	4
1988	2	17.1		*27.0*	4
1988	3	19.2		*27.0*	4
1988	4	20.6		*27.0*	4
1988	5	22.4		*27.0*	4
1988	6	20.9		*27.0*	4

Dixie County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1988	7	20.8		*27.0*	4
1988	8	20.8		*27.0*	4
1988	9	20.1		*27.0*	4
1988	10	19.8		*27.0*	4
1988	11	17.6		*27.0*	4
1988	12	18.3		*27.0*	4
1989	1	19.4		23.9	
1989	2	17.3		22.0	
1989	3	19.6		25.1	
1989	4	21.6		28.1	
1989	5	25.4		30.1	
1989	6	20.4		27.7	
1989	7	19.2		26.7	
1989	8	19.7		27.1	
1989	9	19		26.8	
1989	10	19.3		26.3	
1989	11	17.9		24.6	
1989	12	20.7		25.3	
1990	1	19.2		24.4	
1990	2	15.4		23.0	
1990	3	20.2		28.0	
1990	4	20.6		32.6	
1990	5	25.2		31.0	
1990	6	24.2		28.1	
1990	7	20.9		26.7	
1990	8	20.9		28.9	
1990	9	19.2		28.5	
1990	10	18		26.5	
1990	11	18		25.3	
1990	12	18		24.6	
1991	1	17.9			
1991	2	16.1			
1991	3	17.7			
1991	4	18.4			
1991	5	21.3			
1991	6	21.4			
1991	7	20			
1991	8	21.5			
1991	9	20.4			
1991	10	19.8			
1991	11	19.9			
1991	12	20.1			
1992	1	19.3			
1992	2	18.9			
1992	3	19.4			
1992	4	21.2			
1992	5	27			
1992	6	27.4			
1992	7	21.2			
1992	8	18.5			
1992	9	17.1			
1992	10	17.7			
1992	11	17.6			
1992	12	17.9			
1993	1	18.1			
1993	2	15.5			

Dixie County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1993	3	18			
1993	4	20.1			
1993	5	24.4			
1993	6	23.8			
1993	7	22.1			
1993	8	25.9			
1993	9	19.4			
1993	10	19.6			
1993	11	19.4			
1993	12	19.2			
1994	1	18.7			
1994	2	17			
1994	3	20.2			
1994	4	22.6			
1994	5	26.1			
1994	6	22.1			
1994	7	20			
1994	8	21.1			
1994	9	19.1			
1994	10	17.9			
1994	11	18.5			
1994	12	17.9			
1995	1	18		13.2	
1995	2	16		12.9	
1995	3	19.3		15.3	
1995	4	20.8		13.1	
1995	5	26.4		15.7	
1995	6	21.7		12.9	
1995	7	21.1		12.7	
1995	8	19.8		11.9	
1995	9	18.8		10.3	
1995	10	17.8		10.8	
1995	11	17.8		10.5	
1995	12	17.3		11.2	
1996	1	18.5		16.3	
1996	2	18		14.6	
1996	3	18.7		15.4	
1996	4	20		15.6	
1996	5	22.6		18.9	
1996	6	20.7		17.0	
1996	7	21.5		17.7	
1996	8	20.4		16.9	
1996	9	19.5		15.1	
1996	10	19.7		16.5	
1996	11	19.1		15.8	
1996	12	19.6		15.9	
1997	1	19.1		8.8	
1997	2	17.1		7.9	
1997	3	20		10.0	
1997	4	20.6		9.6	
1997	5	20.9		11.6	
1997	6	19.7		9.1	
1997	7	19.8		9.6	
1997	8	19.6		8.4	
1997	9	19.8		8.2	
1997	10	19.3		7.9	

Dixie County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1997	11	18		5.5	
1997	12	21		5.8	
1998	1	21.5		6.4	
1998	2	18.4		5.7	
1998	3	20		6.3	
1998	4	21.7		7.1	
1998	5	27.3		10.6	
1998	6	29		11.7	
1998	7	26		7.9	
1998	8	22		8.6	
1998	9	19.1		6.4	
1998	10	20.3		6.9	
1998	11	19.4		6.9	
1998	12	17.7		6.5	
1999	1	18.1		6.1	
1999	2	15.5		6.4	
1999	3	18.7		7.6	
1999	4	23		8.3	
1999	5	24		7.4	
1999	6	20.5		6.1	
1999	7	21.4		7.3	
1999	8	19.6		6.2	
1999	9	20.1		7.2	
1999	10	18.6		6.7	
1999	11	18.2		6.5	
1999	12	18.2		6.7	
2000	1	17.4		7.5	
2000	2	16.4		7.1	
2000	3	19.7		8.7	
2000	4	22		8.4	
2000	5	29.9		8.5	
2000	6	21.9		7.5	
2000	7	19.8		7.0	
2000	8	20.6		6.9	
2000	9	17.9		6.4	
2000	10	19.9		8.8	
2000	11	18.9		8.7	
2000	12	20.3		8.6	
2001	1	18.9		6.8	
2001	2	18.2		5.9	
2001	3	18.4		5.8	
2001	4	20.2		6.5	
2001	5	24.9		*6.1*	
2001	6	22.5		6.5	
2001	7	20.5		5.9	
2001	8	23		*6.0*	
2001	9	24.6		*6.1*	
2001	10	25.1		*6.1*	
2001	11	24.5		*6.0*	
2001	12	23.6		*6.0*	
2002	1	24		0.0	
2002	2	22		0.0	
2002	3	29.6		0.0	
2002	4	28.6		0.0	
2002	5	35.6		0.0	
2002	6	29.5		0.0	

Dixie County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2002	7	26.9		0.0	
2002	8	26.8		0.0	
2002	9	23.8		0.0	
2002	10	25.2		0.0	
2002	11	23.7		0.0	
2002	12	22		0.0	
2003	1	25		0.0	
2003	2	20.6		0.1	
2003	3	23.7		0.1	
2003	4	25.9		0.0	
2003	5	30.4		0.0	
2003	6	24.3		0.1	
2003	7	24.6		0.0	
2003	8	24.2		0.0	
2003	9	23.8		0.1	
2003	10	23.3		0.1	
2003	11	22.1		0.0	
2003	12	22.1		0.0	
2004	1	21.5		0.0	
2004	2	19.9		0.0	
2004	3	23		0.0	
2004	4	27.1		0.0	
2004	5	29.8		0.1	
2004	6	25.4		0.1	
2004	7	25.8		0.1	
2004	8	23.6		0.2	
2004	9	22.1		0.2	
2004	10	24.1		0.2	
2004	11	23		0.3	
2004	12	23.8		0.3	
2005	1	22		0.2	
2005	2	18.3		0.2	
2005	3	21.3		0.2	
2005	4	23		0.2	
2005	5	27.3		0.2	
2005	6	25.8		0.2	
2005	7	25.4		0.3	
2005	8	29.6		0.3	
2005	9	32.8		0.3	
2005	10	34		0.3	
2005	11	30.3		0.2	
2005	12	26.7		0.2	
2006	1	25.4		0.0	
2006	2	23.4		0.0	
2006	3	26.9		0.0	
2006	4	28.6		0.0	
2006	5	30.0		0.0	
2006	6	28.6		0.0	
2006	7	30.2		0.0	
2006	8	26.9		0.0	
2006	9	24.4		0.0	
2006	10	25.9		0.0	
2006	11	23.4		0.0	
2006	12	23.3		0.0	
2007	1	22.56		0.3	
2007	2	20.75		0.3	

Dixie County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2007	3	25.08		0.3	
2007	4	25.60		0.3	
2007	5	31.70		0.3	
2007	6	26.29		0.2	
2007	7	26.36		0.3	
2007	8	24.84		0.2	
2007	9	22.11		0.2	
2007	10	21.23		0.2	
2007	11	21.17		0.2	
2007	12	20.96		0.2	

Gilchrist County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1980	1	9.0		*1.8*	1
1980	2	8.9		*1.8*	1
1980	3	10.4		*1.8*	1
1980	4	11.6		*1.8*	1
1980	5	12.4		*1.8*	1
1980	6	13.9		*1.8*	1
1980	7	11.1		*1.8*	1
1980	8	13.0		*1.8*	1
1980	9	12.1		*1.8*	1
1980	10	11.4		*1.8*	1
1980	11	10.0		*1.8*	1
1980	12	9.8		*1.8*	1
1981	1	*9.8*	4	*1.5*	1
1981	2	*9.8*	4	*1.5*	1
1981	3	*9.8*	4	*1.5*	1
1981	4	*9.8*	4	*1.5*	1
1981	5	*9.8*	4	*1.5*	1
1981	6	*9.8*	4	*1.5*	1
1981	7	*9.8*	4	*1.5*	1
1981	8	*9.8*	4	*1.5*	1
1981	9	*9.8*	4	*1.5*	1
1981	10	*9.8*	4	*1.5*	1
1981	11	*9.8*	4	*1.5*	1
1981	12	*9.8*	4	*1.5*	1
1982	1	*9.8*	4	*2.0*	3
1982	2	*9.8*	4	*2.0*	3
1982	3	*9.8*	4	*2.0*	3
1982	4	*9.8*	4	*2.0*	3
1982	5	*9.8*	4	*2.0*	3
1982	6	*9.8*	4	*2.0*	3
1982	7	*9.8*	4	*2.0*	3
1982	8	*9.8*	4	*2.0*	3
1982	9	*9.8*	4	*2.0*	3
1982	10	*9.8*	4	*2.0*	3
1982	11	*9.8*	4	*2.0*	3
1982	12	*9.8*	4	*2.0*	3
1983	1	*10.0*	4	*3.0*	3
1983	2	*10.0*	4	*3.0*	3
1983	3	*10.0*	4	*3.0*	3
1983	4	*10.0*	4	*3.0*	3
1983	5	*10.0*	4	*3.0*	3

Gilchrist County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1983	6	*10.0*	4	*3.0*	3
1983	7	*10.0*	4	*3.0*	3
1983	8	*10.0*	4	*3.0*	3
1983	9	*10.0*	4	*3.0*	3
1983	10	*10.0*	4	*3.0*	3
1983	11	*10.0*	4	*3.0*	3
1983	12	*10.0*	4	*3.0*	3
1984	1	*10.0*	4	*3.0*	3
1984	2	*10.0*	4	*3.0*	3
1984	3	*10.0*	4	*3.0*	3
1984	4	*10.0*	4	*3.0*	3
1984	5	*10.0*	4	*3.0*	3
1984	6	*10.0*	4	*3.0*	3
1984	7	*10.0*	4	*3.0*	3
1984	8	*10.0*	4	*3.0*	3
1984	9	*10.0*	4	*3.0*	3
1984	10	*10.0*	4	*3.0*	3
1984	11	*10.0*	4	*3.0*	3
1984	12	*10.0*	4	*3.0*	3
1985	1	11.5		3.0	
1985	2	11.4		2.5	
1985	3	14.2		2.9	
1985	4	7.9		4.1	
1985	5	14.3		4.8	
1985	6	14.5		3.9	
1985	7	8.9		2.8	
1985	8	3.9		2.9	
1985	9	6.8		2.5	
1985	10	9.1		3.0	
1985	11	11.6		2.9	
1985	12	11.3		2.6	
1986	1	*12.8*	3	*3.5*	4
1986	2	*12.8*	3	*3.5*	4
1986	3	*12.8*	3	*3.5*	4
1986	4	*12.8*	3	*3.5*	4
1986	5	*12.8*	3	*3.5*	4
1986	6	*12.8*	3	*3.5*	4
1986	7	*12.8*	3	*3.5*	4
1986	8	*12.8*	3	*3.5*	4
1986	9	*12.8*	3	*3.5*	4
1986	10	*12.8*	3	*3.5*	4
1986	11	*12.8*	3	*3.5*	4
1986	12	*12.8*	3	*3.5*	4
1987	1	12.0		*3.5*	4
1987	2	10.1		*3.5*	4
1987	3	10.6		*3.5*	4
1987	4	15.5		*3.5*	4
1987	5	16.6		*3.5*	4
1987	6	13.0		*3.5*	4
1987	7	12.5		*3.5*	4
1987	8	12.5		*3.5*	4
1987	9	11.5		*3.5*	4
1987	10	13.4		*3.5*	4
1987	11	8.4		*3.5*	4
1987	12	9.9		*3.5*	4

Gilchrist County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1988	1	*11.3*	3	*3.5*	4
1988	2	*11.3*	3	*3.5*	4
1988	3	*11.3*	3	*3.5*	4
1988	4	*11.3*	3	*3.5*	4
1988	5	*11.3*	3	*3.5*	4
1988	6	*11.3*	3	*3.5*	4
1988	7	*11.3*	3	*3.5*	4
1988	8	*11.3*	3	*3.5*	4
1988	9	*11.3*	3	*3.5*	4
1988	10	*11.3*	3	*3.5*	4
1988	11	*11.3*	3	*3.5*	4
1988	12	*11.3*	3	*3.5*	4
1989	1	10.7		3.4	
1989	2	11.5		2.2	
1989	3	13.1		2.9	
1989	4	14.1		3.8	
1989	5	12.7		4.4	
1989	6	13.8		5.8	
1989	7	12.6		4.4	
1989	8	11.9		4.3	
1989	9	9.8		3.9	
1989	10	9.8		3.2	
1989	11	6.6		3.3	
1989	12	8.2		3.7	
1990	1	7.5		3.5	
1990	2	6.8		3.2	
1990	3	9.2		3.5	
1990	4	9.3		3.1	
1990	5	12.4		5.2	
1990	6	7.8		4.3	
1990	7	7.1		5.2	
1990	8	8.3		4.4	
1990	9	7.7		4.1	
1990	10	7.6		4.8	
1990	11	6.8		3.4	
1990	12	7.4		3.2	
1991	1	6.9		*4.5*	4
1991	2	6.4		*4.5*	4
1991	3	7.2		*4.5*	4
1991	4	7.3		*4.5*	4
1991	5	8.4		*4.5*	4
1991	6	8.0		*4.5*	4
1991	7	8.8		*4.5*	4
1991	8	8.2		*4.5*	4
1991	9	8.5		*4.5*	4
1991	10	7.3		*4.5*	4
1991	11	8.6		*4.5*	4
1991	12	7.5		*4.5*	4
1992	1	8.9		*4.5*	4
1992	2	7.9		*4.5*	4
1992	3	8.4		*4.5*	4
1992	4	9.1		*4.5*	4
1992	5	9.4		*4.5*	4
1992	6	7.5		*4.5*	4
1992	7	8.2		*4.5*	4

Gilchrist County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1992	8	8.0		*4.5*	4
1992	9	7.7		*4.5*	4
1992	10	6.8		*4.5*	4
1992	11	10.1		*4.5*	4
1992	12	6.2		*4.5*	4
1993	1	6.1		*4.5*	4
1993	2	6.2		*4.5*	4
1993	3	6.7		*4.5*	4
1993	4	7.0		*4.5*	4
1993	5	8.7		*4.5*	4
1993	6	8.1		*4.5*	4
1993	7	7.3		*4.5*	4
1993	8	8.6		*4.5*	4
1993	9	7.9		*4.5*	4
1993	10	6.2		*4.5*	4
1993	11	6.9		*4.5*	4
1993	12	6.5		*4.5*	4
1994	1	6.1		*4.5*	4
1994	2	5.5		*4.5*	4
1994	3	6.7		*4.5*	4
1994	4	6.9		*4.5*	4
1994	5	8.4		*4.5*	4
1994	6	7.0		*4.5*	4
1994	7	7.6		*4.5*	4
1994	8	7.3		*4.5*	4
1994	9	6.9		*4.5*	4
1994	10	8.4		*4.5*	4
1994	11	6.8		*4.5*	4
1994	12	5.9		*4.5*	4
1995	1	5.8		4.2	
1995	2	5.5		4.0	
1995	3	6.5		4.9	
1995	4	7.1		4.6	
1995	5	9.1		6.6	
1995	6	8.3		5.4	
1995	7	7.4		5.2	
1995	8	7.0		5.5	
1995	9	6.5		4.9	
1995	10	6.6		4.8	
1995	11	5.9		4.3	
1995	12	6.3		4.2	
1996	1	6.8		3.2	
1996	2	6.1		3.5	
1996	3	6.1		3.6	
1996	4	7.1		3.6	
1996	5	8.7		4.7	
1996	6	6.9		4.4	
1996	7	7.2		4.5	
1996	8	7.1		4.6	
1996	9	6.9		4.1	
1996	10	6.6		4.8	
1996	11	6.2		4.1	
1996	12	6.1		4.3	
1997	1	6.4		4.4	
1997	2	5.3		3.7	

Gilchrist County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1997	3	7.0		4.6	
1997	4	6.5		4.6	
1997	5	7.1		4.8	
1997	6	6.6		3.8	
1997	7	6.4		4.9	
1997	8	6.6		4.5	
1997	9	7.3		4.3	
1997	10	6.9		3.9	
1997	11	6.4		3.9	
1997	12	5.9		3.3	
1998	1	6.1		3.8	
1998	2	5.4		3.3	
1998	3	6.2		3.9	
1998	4	6.7		4.4	
1998	5	9.2		5.7	
1998	6	9.6		6.7	
1998	7	7.5		6.0	
1998	8	6.4		4.6	
1998	9	6.5		3.8	
1998	10	6.9		3.3	
1998	11	6.5		2.7	
1998	12	6.7		2.9	
1999	1	6.6		3.3	
1999	2	6.5		3.5	
1999	3	7.3		4.1	
1999	4	8.2		5.1	
1999	5	7.8		5.8	
1999	6	7.9		6.4	
1999	7	8.1		6.9	
1999	8	7.9		6.8	
1999	9	7.3		7.3	
1999	10	7.2		6.4	
1999	11	7.1		6.3	
1999	12	7.3		5.7	
2000	1	6.0		5.9	
2000	2	5.4		7.4	
2000	3	7.4		7.3	
2000	4	9.0		8.2	
2000	5	11.6		10.7	
2000	6	9.2		9.1	
2000	7	8.7		8.6	
2000	8	7.9		8.1	
2000	9	7.6		8.1	
2000	10	8.4		8.2	
2000	11	7.9		6.9	
2000	12	8.1		7.9	
2001	1	7.4		7.7	
2001	2	7.2		6.5	
2001	3	7.5		6.3	
2001	4	13.0		7.5	
2001	5	10.1		5.8	
2001	6	8.3		9.8	
2001	7	7.5		10.3	
2001	8	7.6		10.0	
2001	9	7.2		9.1	

Gilchrist County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2001	10	8.0		9.7	
2001	11	7.6		8.7	
2001	12	7.6		8.5	
2002	1	7.7		9.5	
2002	2	6.4		9.7	
2002	3	7.5		5.3	
2002	4	7.6		9.7	
2002	5	9.4		10.3	
2002	6	7.3		12.8	
2002	7	7.0		10.3	
2002	8	7.6		8.9	
2002	9	6.9		3.9	
2002	10	7.1		8.0	
2002	11	6.5		3.3	
2002	12	6.1		7.9	
2003	1	7.5		9.7	
2003	2	5.7		8.6	
2003	3	3.7		10.2	
2003	4	9.5		10.6	
2003	5	8.6		10.5	
2003	6	6.8		9.7	
2003	7	7.1		4.5	
2003	8	6.6		4.6	
2003	9	7.5		3.8	
2003	10	6.7		8.4	
2003	11	6.3		9.2	
2003	12	6.5		3.5	
2004	1	6.3		9.6	
2004	2	5.8		9.1	
2004	3	7.0		9.1	
2004	4	7.5		3.5	
2004	5	9.1		13.3	
2004	6	6.8		14.1	
2004	7	6.9		12.6	
2004	8	6.9		3.4	
2004	9	8.2		11.2	
2004	10	7.2		9.2	
2004	11	6.2		7.5	
2004	12	6.7		6.0	
2005	1	6.4		9.9	
2005	2	5.8		10.1	
2005	3	5.8		12.5	
2005	4	6.5		10.2	
2005	5	7.4		12.6	
2005	6	7.0		11.0	
2005	7	7.4		12.8	
2005	8	7.0		15.1	
2005	9	6.9		11.5	
2005	10	7.1		13.0	
2005	11	6.7		13.7	
2005	12	6.7		13.5	
2006	1	6.1		13.3	
2006	2	5.9		14.5	
2006	3	7.1		17.0	
2006	4	7.7		16.6	
2006	5	8.7		16.9	
2006	6	7.8		16.9	
2006	7	7.0		18.2	
2006	8	7.0		16.3	
2006	9	6.9		17.4	
2006	10	6.9		15.0	
2006	11	6.0		14.5	
2006	12	6.0		10.6	
2007	1	6.8		11.6	
2007	2	6.5		14.6	
2007	3	7.7		15.7	
2007	4	8.1		15.9	
2007	5	9.3		15.3	
2007	6	8.9		18.3	
2007	7	9.5		16.5	
2007	8	8.3		17.0	
2007	9	7.7		15.5	
2007	10	7.0		14.1	
2007	11	7.0		11.4	
2007	12	6.4		13.4	

[1] Monthly estimates based on annual USGS (R Marella) reported data

[3] Interpolated estimate based on annual averages in years before and after

Hamilton County Florida					
Yr	Mo	PubSupp	Estim	CommIndPow Min	Estim
1980	1	19.3		1092.0	
1980	2	17.3		1092.0	
1980	3	19.8		1092.0	
1980	4	19.8		1092.0	
1980	5	22.5		1092.0	
1980	6	24.2		1092.0	
1980	7	22.6		1092.0	
1980	8	22.3		1092.0	
1980	9	21.7		1092.0	
1980	10	21.5		1092.0	
1980	11	18.8		1092.0	
1980	12	19.7		1092.0	
1981	1	*18.9*	3	1267.6	
1981	2	*18.9*	3	1267.6	
1981	3	*18.9*	3	1267.6	
1981	4	*18.9*	3	1267.6	
1981	5	*18.9*	3	1267.6	
1981	6	*18.9*	3	1267.6	
1981	7	*18.9*	3	1267.6	
1981	8	*18.9*	3	1267.6	
1981	9	*18.9*	3	1267.6	
1981	10	*18.9*	3	1267.6	
1981	11	*18.9*	3	1267.6	
1981	12	*18.9*	3	1267.6	
1982	1	*20.6*	4	*1200.0*	4
1982	2	*20.6*	4	*1200.0*	4
1982	3	*20.6*	4	*1200.0*	4

Hamilton County Florida					
Yr	Mo	PubSupp	Estim	CommIndPow Min	Estim
1982	4	*20.6*	4	*1200.0*	4
1982	5	*20.6*	4	*1200.0*	4
1982	6	*20.6*	4	*1200.0*	4
1982	7	*20.6*	4	*1200.0*	4
1982	8	*20.6*	4	*1200.0*	4
1982	9	*20.6*	4	*1200.0*	4
1982	10	*20.6*	4	*1200.0*	4
1982	11	*20.6*	4	*1200.0*	4
1982	12	*20.6*	4	*1200.0*	4
1983	1	*20.6*	4	*1200.0*	4
1983	2	*20.6*	4	*1200.0*	4
1983	3	*20.6*	4	*1200.0*	4
1983	4	*20.6*	4	*1200.0*	4
1983	5	*20.6*	4	*1200.0*	4
1983	6	*20.6*	4	*1200.0*	4
1983	7	*20.6*	4	*1200.0*	4
1983	8	*20.6*	4	*1200.0*	4
1983	9	*20.6*	4	*1200.0*	4
1983	10	*20.6*	4	*1200.0*	4
1983	11	*20.6*	4	*1200.0*	4
1983	12	*20.6*	4	*1200.0*	4
1984	1	*20.6*	4	*1200.0*	4
1984	2	*20.6*	4	*1200.0*	4
1984	3	*20.6*	4	*1200.0*	4
1984	4	*20.6*	4	*1200.0*	4
1984	5	*20.6*	4	*1200.0*	4
1984	6	*20.6*	4	*1200.0*	4
1984	7	*20.6*	4	*1200.0*	4
1984	8	*20.6*	4	*1200.0*	4
1984	9	*20.6*	4	*1200.0*	4
1984	10	*20.6*	4	*1200.0*	4
1984	11	*20.6*	4	*1200.0*	4
1984	12	*20.6*	4	*1200.0*	4
1985	1	24.1		1183.1	
1985	2	18.0		1183.1	
1985	3	21.8		1183.1	
1985	4	22.7		1183.1	
1985	5	27.6		1183.1	
1985	6	25.2		1183.1	
1985	7	23.6		1183.1	
1985	8	21.2		1183.1	
1985	9	20.9		1183.1	
1985	10	21.0		1183.1	
1985	11	20.0		1183.1	
1985	12	19.8		1183.1	
1986	1	*23.5*	3	*1200.0*	4
1986	2	*23.5*	3	*1200.0*	4
1986	3	*23.5*	3	*1200.0*	4
1986	4	*23.5*	3	*1200.0*	4
1986	5	*23.5*	3	*1200.0*	4
1986	6	*23.5*	3	*1200.0*	4
1986	7	*23.5*	3	*1200.0*	4
1986	8	*23.5*	3	*1200.0*	4
1986	9	*23.5*	3	*1200.0*	4
1986	10	*23.5*	3	*1200.0*	4

Hamilton County Florida					
Yr	Mo	PubSupp	Estim	CommIndPow Min	Estim
1986	11	*23.5*	3	*1200.0*	4
1986	12	*23.5*	3	*1200.0*	4
1987	1	24.0		*1200.0*	4
1987	2	19.3		*1200.0*	4
1987	3	22.1		*1200.0*	4
1987	4	23.5		*1200.0*	4
1987	5	29.3		*1200.0*	4
1987	6	33.4		*1200.0*	4
1987	7	26.8		*1200.0*	4
1987	8	26.5		*1200.0*	4
1987	9	24.6		*1200.0*	4
1987	10	27.3		*1200.0*	4
1987	11	23.4		*1200.0*	4
1987	12	22.8		*1200.0*	4
1988	1	*27.5*	3	*1300.0*	4
1988	2	*27.5*	3	*1300.0*	4
1988	3	*27.5*	3	*1300.0*	4
1988	4	*27.5*	3	*1300.0*	4
1988	5	*27.5*	3	*1300.0*	4
1988	6	*27.5*	3	*1300.0*	4
1988	7	*27.5*	3	*1300.0*	4
1988	8	*27.5*	3	*1300.0*	4
1988	9	*27.5*	3	*1300.0*	4
1988	10	*27.5*	3	*1300.0*	4
1988	11	*27.5*	3	*1300.0*	4
1988	12	*27.5*	3	*1300.0*	4
1989	1	26.2	3	*1400.0*	4
1989	2	24.7	3	*1400.0*	4
1989	3	26.3		*1400.0*	4
1989	4	34.8		*1400.0*	4
1989	5	31.5		*1400.0*	4
1989	6	29.4		*1400.0*	4
1989	7	28.2		*1400.0*	4
1989	8	29.2		*1400.0*	4
1989	9	25.7		*1400.0*	4
1989	10	26.1		*1400.0*	4
1989	11	25.2		1669.7	
1989	12	29.3		1877.8	
1990	1	26.0		1368.2	
1990	2	23.1		1314.4	
1990	3	28.3		1521.9	
1990	4	29.9		1264.7	
1990	5	35.2		1348.3	
1990	6	31.9		1300.9	
1990	7	33.8		1325.9	
1990	8	32.4		1359.9	
1990	9	32.0		1214.7	
1990	10	28.7		1322.2	
1990	11	28.6		1473.2	
1990	12	25.0		1267.9	
1991	1	23.8		*1300.0*	4
1991	2	23.3		*1300.0*	4
1991	3	24.7		*1300.0*	4
1991	4	25.9		*1300.0*	4
1991	5	26.3		*1300.0*	4

Hamilton County Florida					
Yr	Mo	PubSupp	Estim	CommIndPow Min	Estim
1991	6	25.9		*1300.0*	4
1991	7	26.7		*1300.0*	4
1991	8	34.3		*1300.0*	4
1991	9	28.1		*1300.0*	4
1991	10	26.8		*1300.0*	4
1991	11	24.2		*1300.0*	4
1991	12	24.0		*1300.0*	4
1992	1	24.0		*1300.0*	4
1992	2	20.2		*1300.0*	4
1992	3	22.3		*1300.0*	4
1992	4	25.0		*1300.0*	4
1992	5	28.3		*1300.0*	4
1992	6	25.1		*1300.0*	4
1992	7	28.4		*1300.0*	4
1992	8	25.6		*1300.0*	4
1992	9	26.6		*1300.0*	4
1992	10	25.4		*1300.0*	4
1992	11	24.0		*1300.0*	4
1992	12	24.2		*1300.0*	4
1993	1	23.4		*1300.0*	4
1993	2	21.0		*1300.0*	4
1993	3	24.0		*1300.0*	4
1993	4	25.1		*1300.0*	4
1993	5	34.9		*1300.0*	4
1993	6	34.7		*1300.0*	4
1993	7	29.9		*1300.0*	4
1993	8	32.0		*1300.0*	4
1993	9	28.4		*1300.0*	4
1993	10	30.8		*1300.0*	4
1993	11	27.3		*1300.0*	4
1993	12	26.6		*1300.0*	4
1994	1	26.2		*1200.0*	4
1994	2	23.3		*1200.0*	4
1994	3	27.3		*1200.0*	4
1994	4	28.0		*1200.0*	4
1994	5	31.5		*1200.0*	4
1994	6	27.6		*1200.0*	4
1994	7	28.4		*1200.0*	4
1994	8	26.8		*1200.0*	4
1994	9	25.9		*1200.0*	4
1994	10	27.2		*1200.0*	4
1994	11	23.6		*1200.0*	4
1994	12	23.0		*1200.0*	4
1995	1	23.8		1268.0	
1995	2	22.3		1268.1	
1995	3	26.1		1431.2	
1995	4	26.1		1249.1	
1995	5	33.0		1142.3	
1995	6	28.3		1081.3	
1995	7	26.9		1218.5	
1995	8	28.4		1168.7	
1995	9	26.7		1117.5	
1995	10	25.5		1535.9	
1995	11	24.6		1229.2	
1995	12	25.2		761.8	

Hamilton County Florida					
Yr	Mo	PubSupp	Estim	CommIndPow Min	Estim
1996	1	26.4		1460.9	
1996	2	25.9		1145.5	
1996	3	26.1		1227.1	
1996	4	26.2		779.7	
1996	5	29.4		923.1	
1996	6	29.8		1098.3	
1996	7	30.7		974.2	
1996	8	28.1		942.3	
1996	9	25.8		765.7	
1996	10	25.1		1259.9	
1996	11	24.2		1019.1	
1996	12	26.1		1062.0	
1997	1	26.3		565.6	
1997	2	22.1		1026.3	
1997	3	24.9		946.0	
1997	4	24.5		1053.7	
1997	5	25.5		1139.6	
1997	6	24.4		920.0	
1997	7	26.5		828.8	
1997	8	26.2		1167.3	
1997	9	28.8		1531.9	
1997	10	27.3		1577.6	
1997	11	22.0		948.1	
1997	12	22.6		722.9	
1998	1	22.2		1069.5	
1998	2	20.8		769.2	
1998	3	23.0		978.5	
1998	4	23.3		945.4	
1998	5	30.1		1121.1	
1998	6	33.6		937.2	
1998	7	27.8		930.8	
1998	8	26.8		958.6	
1998	9	24.2		1052.7	
1998	10	26.7		1300.2	
1998	11	24.7		1000.3	
1998	12	24.4		862.5	
1999	1	24.9		1221.1	
1999	2	21.2		968.2	
1999	3	23.9		993.3	
1999	4	28.4		1069.1	
1999	5	31.3		1058.5	
1999	6	30.8		799.4	
1999	7	28.3		1256.2	
1999	8	28.0		1070.0	
1999	9	27.0		1294.6	
1999	10	26.5		1038.1	
1999	11	25.7		1004.5	
1999	12	24.6		963.3	
2000	1	25.0		840.8	
2000	2	24.1		945.3	
2000	3	25.9		1010.7	
2000	4	30.5		1149.9	
2000	5	40.4		815.8	
2000	6	32.8		980.8	
2000	7	32.7		955.3	

Hamilton County Florida					
Yr	Mo	PubSupp	Estim	CommIndPow Min	Estim
2000	8	29.2		1079.9	
2000	9	25.7		1068.3	
2000	10	27.6		1115.2	
2000	11	26.0		1332.4	
2000	12	28.0		1276.8	
2001	1	33.9		680.4	
2001	2	24.6		619.8	
2001	3	26.9		552.9	
2001	4	29.6		762.5	
2001	5	36.0		776.9	
2001	6	28.9		865.1	
2001	7	31.2		889.6	
2001	8	30.4		694.3	
2001	9	31.9		779.0	
2001	10	28.7		1208.7	
2001	11	28.3		465.4	
2001	12	28.8		834.6	
2002	1	27.5		657.9	
2002	2	25.7		630.2	
2002	3	28.5		764.0	
2002	4	29.2		631.9	
2002	5	36.0		1001.2	
2002	6	32.7		988.2	
2002	7	30.5		1085.5	
2002	8	29.8		1061.6	
2002	9	28.3		1000.3	
2002	10	29.1		1045.2	
2002	11	28.2		747.4	
2002	12	26.6		490.2	
2003	1	30.8		1125.5	
2003	2	25.0		904.4	
2003	3	28.7		852.6	
2003	4	28.8		993.2	
2003	5	30.2		899.3	
2003	6	27.0		882.3	
2003	7	27.2		989.2	
2003	8	28.0		1233.8	
2003	9	28.9		972.4	
2003	10	29.3		1029.5	
2003	11	28.0		924.3	
2003	12	28.7		908.5	
2004	1	28.0		983.0	
2004	2	32.6		1047.2	
2004	3	29.0		1153.3	
2004	4	29.3		942.3	
2004	5	32.3		1110.1	
2004	6	31.5		1263.2	
2004	7	31.1		995.3	
2004	8	29.3		1175.2	
2004	9	36.8		786.2	
2004	10	39.5		214.7	
2004	11	34.0		936.1	
2004	12	28.2		194.9	
2005	1	29.9		604.5	
2005	2	25.8		621.6	

Hamilton County Florida					
Yr	Mo	PubSupp	Estim	CommIndPow Min	Estim
2005	3	27.7		641.7	
2005	4	27.4		945.0	
2005	5	30.6		902.1	
2005	6	29.7		957.0	
2005	7	31.6		1441.5	
2005	8	29.3		1184.2	
2005	9	28.5		1227.0	
2005	10	27.7		1360.9	
2005	11	26.7		1329.0	
2005	12	25.8		1109.8	
2006	1	24.3		496.0	
2006	2	21.5		442.4	
2006	3	25.5		492.9	
2006	4	27.4		444.0	
2006	5	28.7		427.8	
2006	6	28.2		486.0	
2006	7	29.2		437.1	
2006	8	26.7		291.4	
2006	9	26.3		291.0	
2006	10	28.2		288.3	
2006	11	25.1		279.0	
2006	12	25.8		294.5	
2007	1	21.6		316.2	
2007	2	19.7		280.0	
2007	3	22.0		285.2	
2007	4	22.8		240.0	
2007	5	25.8		263.5	
2007	6	24.1		270.0	
2007	7	25.6		272.8	
2007	8	24.4		303.8	
2007	9	22.2		315.0	
2007	10	23.4		263.5	
2007	11	22.8		249.0	
2007	12	23.2		257.3	

[3] Interpolated estimate based on annual averages in years before and after

[4] Simple Interpolated estimates

Lafayette County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1980	1	3.4		0.0	
1980	2	3.2		0.0	
1980	3	3.4		0.0	
1980	4	3.5		0.0	
1980	5	3.7		0.0	
1980	6	4.1		0.0	
1980	7	3.7		0.0	
1980	8	3.8		0.0	
1980	9	3.7		0.0	
1980	10	4.2		0.0	
1980	11	4.0		0.0	
1980	12	4.0		0.0	
1981	1	*4.3*	4		
1981	2	*4.3*	4		

Lafayette County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1981	3	*4.3*	4		
1981	4	*4.3*	4		
1981	5	*4.3*	4		
1981	6	*4.3*	4		
1981	7	*4.3*	4		
1981	8	*4.3*	4		
1981	9	*4.3*	4		
1981	10	*4.3*	4		
1981	11	*4.3*	4		
1981	12	*4.3*	4		
1982	1	*4.3*	4		
1982	2	*4.3*	4		
1982	3	*4.3*	4		
1982	4	*4.3*	4		
1982	5	*4.3*	4		
1982	6	*4.3*	4		
1982	7	*4.3*	4		
1982	8	*4.3*	4		
1982	9	*4.3*	4		
1982	10	*4.3*	4		
1982	11	*4.3*	4		
1982	12	*4.3*	4		
1983	1	*4.3*	4		
1983	2	*4.3*	4		
1983	3	*4.3*	4		
1983	4	*4.3*	4		
1983	5	*4.3*	4		
1983	6	*4.3*	4		
1983	7	*4.3*	4		
1983	8	*4.3*	4		
1983	9	*4.3*	4		
1983	10	*4.3*	4		
1983	11	*4.3*	4		
1983	12	*4.3*	4		
1984	1	*4.3*	4		
1984	2	*4.3*	4		
1984	3	*4.3*	4		
1984	4	*4.3*	4		
1984	5	*4.3*	4		
1984	6	*4.3*	4		
1984	7	*4.3*	4		
1984	8	*4.3*	4		
1984	9	*4.3*	4		
1984	10	*4.3*	4		
1984	11	*4.3*	4		
1984	12	*4.3*	4		
1985	1	4.9		3.2	
1985	2	3.4		1.8	
1985	3	5.3		2.6	
1985	4	5.2		3.7	
1985	5	6.1		3.8	
1985	6	5.7		1.9	
1985	7	3.8		2.2	
1985	8	3.9		2.2	
1985	9	4.0		1.9	
1985	10	4.3		2.0	

Lafayette County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1985	11	4.0		1.7	
1985	12	4.4		2.6	
1986	1	*4.9*	4	*2.8*	3
1986	2	*4.9*	4	*2.8*	3
1986	3	*4.9*	4	*2.8*	3
1986	4	*4.9*	4	*2.8*	3
1986	5	*4.9*	4	*2.8*	3
1986	6	*4.9*	4	*2.8*	3
1986	7	*4.9*	4	*2.8*	3
1986	8	*4.9*	4	*2.8*	3
1986	9	*4.9*	4	*2.8*	3
1986	10	*4.9*	4	*2.8*	3
1986	11	*4.9*	4	*2.8*	3
1986	12	*4.9*	4	*2.8*	3
1987	1	4.9		2.0	
1987	2	3.9		2.3	
1987	3	4.5		2.1	
1987	4	5.8		3.8	
1987	5	6.3		3.8	
1987	6	5.7		3.8	
1987	7	5.1		2.9	
1987	8	5.0		2.9	
1987	9	4.7		3.0	
1987	10	4.8		3.6	
1987	11	4.6		3.1	
1987	12	4.4		3.2	
1988	1	*5.5*	3	*3.8*	3
1988	2	*5.5*	3	*3.8*	3
1988	3	*5.5*	3	*3.8*	3
1988	4	*5.5*	3	*3.8*	3
1988	5	*5.5*	3	*3.8*	3
1988	6	*5.5*	3	*3.8*	3
1988	7	*5.5*	3	*3.8*	3
1988	8	*5.5*	3	*3.8*	3
1988	9	*5.5*	3	*3.8*	3
1988	10	*5.5*	3	*3.8*	3
1988	11	*5.5*	3	*3.8*	3
1988	12	*5.5*	3	*3.8*	3
1989	1	5.0		3.9	
1989	2	5.3		4.2	
1989	3	5.7		5.2	
1989	4	6.2		5.0	
1989	5	6.7		6.1	
1989	6	5.8		5.2	
1989	7	5.6		5.3	
1989	8	5.6		5.6	
1989	9	5.7		4.0	
1989	10	5.5		4.0	
1989	11	4.7		4.0	
1989	12	6.1		4.1	
1990	1	4.7		3.1	
1990	2	4.3		2.6	
1990	3	6.0		4.0	
1990	4	6.1		5.3	
1990	5	6.8		5.0	
1990	6	5.7		5.0	

Lafayette County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1990	7	5.2		5.1	
1990	8	6.1		5.1	
1990	9	6.0		4.5	
1990	10	5.6		4.4	
1990	11	4.6		3.8	
1990	12	4.5		4.2	
1991	1	4.6		*5.0*	4
1991	2	4.3		*5.0*	4
1991	3	4.8		*5.0*	4
1991	4	5.4		*5.0*	4
1991	5	6.2		*5.0*	4
1991	6	4.9		*5.0*	4
1991	7	5.7		*5.0*	4
1991	8	5.9		*5.0*	4
1991	9	6.6		*5.0*	4
1991	10	6.3		*5.0*	4
1991	11	6.2		*5.0*	4
1991	12	5.5		*5.0*	4
1992	1	5.7		*5.0*	4
1992	2	4.5		*5.0*	4
1992	3	5.7		*5.0*	4
1992	4	6.2		*5.0*	4
1992	5	5.5		*5.0*	4
1992	6	5.5		*5.0*	4
1992	7	5.6		*5.0*	4
1992	8	5.3		*5.0*	4
1992	9	5.9		*5.0*	4
1992	10	5.5		*5.0*	4
1992	11	4.5		*5.0*	4
1992	12	4.6		*5.0*	4
1993	1	4.8		*6.0*	4
1993	2	4.5		*6.0*	4
1993	3	4.6		*6.0*	4
1993	4	5.1		*6.0*	4
1993	5	6.3		*6.0*	4
1993	6	5.4		*6.0*	4
1993	7	5.1		*6.0*	4
1993	8	5.7		*6.0*	4
1993	9	5.3		*6.0*	4
1993	10	5.4		*6.0*	4
1993	11	4.9		*6.0*	4
1993	12	5.1		*6.0*	4
1994	1	5.1		*6.0*	4
1994	2	6.5		*6.0*	4
1994	3	5.6		*6.0*	4
1994	4	6.2		*6.0*	4
1994	5	6.1		*6.0*	4
1994	6	5.0		*6.0*	4
1994	7	5.2		*6.0*	4
1994	8	4.9		*6.0*	4
1994	9	5.7		*6.0*	4
1994	10	5.7		*6.0*	4
1994	11	5.1		*6.0*	4
1994	12	5.5		*6.0*	4
1995	1	4.7		6.4	
1995	2	4.8		6.2	

Lafayette County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1995	3	5.4		7.3	
1995	4	5.3		6.8	
1995	5	5.8		8.5	
1995	6	5.7		7.2	
1995	7	5.7		7.2	
1995	8	5.5		7.5	
1995	9	5.4		7.4	
1995	10	5.5		6.8	
1995	11	5.3		6.1	
1995	12	5.6		6.6	
1996	1	5.5		6.7	
1996	2	5.2		6.4	
1996	3	5.5		6.6	
1996	4	5.3		6.7	
1996	5	5.5		7.8	
1996	6	5.2		7.4	
1996	7	5.1		7.2	
1996	8	5.5		6.1	
1996	9	5.2		5.4	
1996	10	5.4		5.9	
1996	11	5.2		5.7	
1996	12	5.3		5.6	
1997	1	5.7		5.7	
1997	2	4.9		4.7	
1997	3	5.1		5.5	
1997	4	5.1		5.6	
1997	5	5.4		6.6	
1997	6	4.9		5.8	
1997	7	5.2		6.0	
1997	8	5.5		6.3	
1997	9	5.5		6.5	
1997	10	5.7		6.6	
1997	11	6.0		5.9	
1997	12	5.8		6.1	
1998	1	5.2		5.7	
1998	2	5.0		5.0	
1998	3	5.0		5.5	
1998	4	5.5		5.5	
1998	5	7.4		6.7	
1998	6	8.2		8.0	
1998	7	7.7		6.5	
1998	8	6.7		5.9	
1998	9	5.5		4.7	
1998	10	4.7		5.1	
1998	11	5.9		5.2	
1998	12	5.9		5.4	
1999	1	7.8		4.9	
1999	2	5.3		4.8	
1999	3	7.0		5.9	
1999	4	7.1		6.1	
1999	5	8.7		5.8	
1999	6	7.9		5.3	
1999	7	7.0		5.6	
1999	8	8.4		5.8	
1999	9	6.9		5.4	
1999	10	6.8		5.1	

Lafayette County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1999	11	6.8		5.1	
1999	12	7.3		5.3	
2000	1	6.6		5.8	
2000	2	6.0		5.6	
2000	3	6.5		6.2	
2000	4	6.4		6.5	
2000	5	7.5		7.2	
2000	6	6.3		6.3	
2000	7	5.8		5.8	
2000	8	6.1		5.5	
2000	9	5.3		5.3	
2000	10	5.5		5.5	
2000	11	3.5		5.5	
2000	12	6.2		6.2	
2001	1	3.9		6.1	
2001	2	3.5		5.2	
2001	3	4.6		5.7	
2001	4	4.3		5.6	
2001	5	6.6		6.7	
2001	6	5.1		5.9	
2001	7	5.0		6.1	
2001	8	4.8		6.6	
2001	9	4.6		6.3	
2001	10	5.2		6.1	
2001	11	4.9		5.6	
2001	12	5.0		5.5	
2002	1	4.8		6.4	
2002	2	4.0		4.8	
2002	3	5.1		5.4	
2002	4	5.6		5.2	
2002	5	6.3		6.4	
2002	6	6.5		5.5	
2002	7	7.1		5.3	
2002	8	7.2		5.3	
2002	9	7.1		5.2	
2002	10	6.9		5.4	
2002	11	5.9		5.3	
2002	12	6.2		5.9	
2003	1	6.6		7.0	
2003	2	5.5		6.1	
2003	3	6.0		6.4	
2003	4	6.4		6.2	
2003	5	7.2		6.6	
2003	6	6.3		5.7	
2003	7	6.2		6.0	
2003	8	5.8		6.0	
2003	9	6.2		6.3	
2003	10	6.4		6.5	
2003	11	5.7		3.4	
2003	12	5.8		4.5	
2004	1	6.1		3.7	
2004	2	5.6		2.3	
2004	3	6.4		5.3	
2004	4	7.2		7.4	
2004	5	7.8		7.1	
2004	6	6.4		7.5	

Lafayette County Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2004	7	6.2		7.3	
2004	8	6.1		7.7	
2004	9	5.8		8.6	
2004	10	5.8		9.3	
2004	11	5.3		9.1	
2004	12	6.0		11.5	
2005	1	5.8		12.6	
2005	2	5.2		11.2	
2005	3	5.6		9.2	
2005	4	5.7		8.9	
2005	5	6.4		9.7	
2005	6	5.8		9.5	
2005	7	6.3		9.6	
2005	8	6.4		9.6	
2005	9	6.9		9.8	
2005	10	6.3		9.6	
2005	11	6.6		9.5	
2005	12	6.9		9.3	
2006	1	7.0		9.1	
2006	2	6.3		8.4	
2006	3	7.4		10.2	
2006	4	8.2		11.0	
2006	5	9.1		5.5	
2006	6	7.7		10.6	
2006	7	7.8		11.8	
2006	8	6.8		11.8	
2006	9	6.5		11.4	
2006	10	6.6		9.0	
2006	11	6.0		9.0	
2006	12	6.6		9.0	
2007	1	6.4		7.1	
2007	2	5.8		6.8	
2007	3	7.4		7.9	
2007	4	8.6		8.0	
2007	5	10.9		8.7	
2007	6	9.4		7.6	
2007	7	8.2		7.0	
2007	8	8.1		6.9	
2007	9	7.2		9.1	
2007	10	6.9		7.0	
2007	11	7.3		5.9	
2007	12	7.0		6.0	

[3] Interpolated estimate based on annual averages in years before and after

[4] Simple Interpolated estimates

Madison County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1980	1	26.2		1.2	1
1980	2	23.2		1.2	1
1980	3	25.2		1.2	1
1980	4	23.5		1.2	1
1980	5	26.6		1.2	1
1980	6	30.4		1.2	1

Madison County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1980	7	32.8		1.2	1
1980	8	33.4		1.2	1
1980	9	33.6		1.2	1
1980	10	31.3		1.2	1
1980	11	28.5		1.2	1
1980	12	28.7		1.2	1
1981	1	*30.0*	4		
1981	2	*30.0*	4		
1981	3	*30.0*	4		
1981	4	*30.0*	4		
1981	5	*30.0*	4		
1981	6	*30.0*	4		
1981	7	*30.0*	4		
1981	8	*30.0*	4		
1981	9	*30.0*	4		
1981	10	*30.0*	4		
1981	11	*30.0*	4		
1981	12	*30.0*	4		
1982	1	*33.0*	4		
1982	2	*33.0*	4		
1982	3	*33.0*	4		
1982	4	*33.0*	4		
1982	5	*33.0*	4		
1982	6	*33.0*	4		
1982	7	*33.0*	4		
1982	8	*33.0*	4		
1982	9	*33.0*	4		
1982	10	*33.0*	4		
1982	11	*33.0*	4		
1982	12	*33.0*	4		
1983	1	*33.0*	4		
1983	2	*33.0*	4		
1983	3	*33.0*	4		
1983	4	*33.0*	4		
1983	5	*33.0*	4		
1983	6	*33.0*	4		
1983	7	*33.0*	4		
1983	8	*33.0*	4		
1983	9	*33.0*	4		
1983	10	*33.0*	4		
1983	11	*33.0*	4		
1983	12	*33.0*	4		
1984	1	*33.0*	4		
1984	2	*33.0*	4		
1984	3	*33.0*	4		
1984	4	*33.0*	4		
1984	5	*33.0*	4		
1984	6	*33.0*	4		
1984	7	*33.0*	4		
1984	8	*33.0*	4		
1984	9	*33.0*	4		
1984	10	*33.0*	4		
1984	11	*33.0*	4		
1984	12	*33.0*	4		
1985	1	36.3		14.3	1

Madison County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1985	2	32.7		14.3	1
1985	3	35.6		14.3	1
1985	4	36.6		14.3	1
1985	5	39.4		14.3	1
1985	6	38.1		14.3	1
1985	7	37.2		14.3	1
1985	8	36.7		14.3	1
1985	9	36.5		14.3	1
1985	10	36.1		14.3	1
1985	11	32.5		14.3	1
1985	12	35.0		14.3	1
1986	1	*40.0*	4		
1986	2	*40.0*	4		
1986	3	*40.0*	4		
1986	4	*40.0*	4		
1986	5	*40.0*	4		
1986	6	*40.0*	4		
1986	7	*40.0*	4		
1986	8	*40.0*	4		
1986	9	*40.0*	4		
1986	10	*40.0*	4		
1986	11	*40.0*	4		
1986	12	*40.0*	4		
1987	1	36.7			
1987	2	34.0			
1987	3	37.3			
1987	4	40.4			
1987	5	47.0			
1987	6	41.9			
1987	7	43.8			
1987	8	43.7			
1987	9	41.5			
1987	10	46.9			
1987	11	42.2			
1987	12	40.9			
1988	1	*43.0*	4		
1988	2	*43.0*	4		
1988	3	*43.0*	4		
1988	4	*43.0*	4		
1988	5	*43.0*	4		
1988	6	*43.0*	4		
1988	7	*43.0*	4		
1988	8	*43.0*	4		
1988	9	*43.0*	4		
1988	10	*43.0*	4		
1988	11	*43.0*	4		
1988	12	*43.0*	4		
1989	1	41.2			
1989	2	39.4			
1989	3	43.9			
1989	4	40.7			
1989	5	46.0			
1989	6	41.5			
1989	7	39.9			
1989	8	44.0			

Madison County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1989	9	42.4			
1989	10	43.8			
1989	11	42.4			
1989	12	42.8			
1990	1	41.0		7.1	
1990	2	32.6		6.6	
1990	3	44.0		7.1	
1990	4	42.9		7.0	
1990	5	49.4		7.1	
1990	6	46.3		7.1	
1990	7	45.4		7.1	
1990	8	49.0		7.1	
1990	9	46.1		7.0	
1990	10	42.4		7.5	
1990	11	42.6		7.0	
1990	12	41.0		7.0	
1991	1	39.8			
1991	2	35.3			
1991	3	39.8			
1991	4	40.2			
1991	5	42.5			
1991	6	41.7			
1991	7	43.7			
1991	8	42.5			
1991	9	43.6			
1991	10	44.3			
1991	11	40.2			
1991	12	45.8			
1992	1	47.0			
1992	2	44.3			
1992	3	51.2			
1992	4	54.3			
1992	5	67.6			
1992	6	58.4			
1992	7	63.6			
1992	8	62.6			
1992	9	58.8			
1992	10	63.0			
1992	11	57.9			
1992	12	54.2			
1993	1	44.0			
1993	2	39.2			
1993	3	44.0			
1993	4	44.5			
1993	5	58.8			
1993	6	54.4			
1993	7	51.5			
1993	8	47.1			
1993	9	47.6			
1993	10	48.1			
1993	11	44.5			
1993	12	41.5			
1994	1	45.9			
1994	2	40.4			
1994	3	48.0			

Madison County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1994	4	49.1			
1994	5	58.2			
1994	6	48.2			
1994	7	46.9			
1994	8	46.2			
1994	9	48.7			
1994	10	44.6			
1994	11	44.4			
1994	12	43.4			
1995	1	42.5		4.8	
1995	2	40.4		2.3	
1995	3	44.5		2.6	
1995	4	45.2		2.4	
1995	5	53.7		2.8	
1995	6	51.3		2.7	
1995	7	50.9		2.9	
1995	8	52.6		2.9	
1995	9	54.2		2.6	
1995	10	48.8		2.7	
1995	11	45.7		2.7	
1995	12	47.4		2.6	
1996	1	49.5		0.6	
1996	2	49.3		0.6	
1996	3	45.2		0.6	
1996	4	47.3		0.6	
1996	5	54.9		0.6	
1996	6	50.7		0.6	
1996	7	51.3		0.6	
1996	8	46.3		0.6	
1996	9	43.5		0.6	
1996	10	46.4		0.6	
1996	11	41.5		0.6	
1996	12	44.1		0.6	
1997	1	45.8		0.6	
1997	2	41.7		0.6	
1997	3	41.9		0.6	
1997	4	43.8		0.6	
1997	5	47.0		0.6	
1997	6	47.9		0.6	
1997	7	51.7		0.6	
1997	8	53.5		0.4	
1997	9	52.5		0.3	
1997	10	45.1		0.4	
1997	11	43.1		0.8	
1997	12	45.1		1.1	
1998	1	44.0		1.2	
1998	2	39.7		1.0	
1998	3	45.0		0.9	
1998	4	49.6		0.8	
1998	5	58.1		1.1	
1998	6	59.4		1.4	
1998	7	54.0		1.2	
1998	8	52.1		1.4	
1998	9	48.1		1.4	
1998	10	49.3		1.2	

Madison County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1998	11	42.6		1.2	
1998	12	44.3		1.1	
1999	1	42.0		0.0	
1999	2	36.9		0.0	
1999	3	40.1		0.0	
1999	4	46.1		0.0	
1999	5	49.6		0.0	
1999	6	48.4		0.0	
1999	7	48.1		0.0	
1999	8	53.1		0.0	
1999	9	49.6		0.0	
1999	10	50.4		0.0	
1999	11	47.3		0.0	
1999	12	50.0		0.0	
2000	1	49.8		3.7	
2000	2	45.7		4.4	
2000	3	47.9		3.8	
2000	4	47.1		4.5	
2000	5	63.6		6.3	
2000	6	51.9		6.0	
2000	7	52.4		5.4	
2000	8	51.0		4.6	
2000	9	44.6		3.0	
2000	10	48.6		2.7	
2000	11	47.1		3.3	
2000	12	50.8		3.2	
2001	1	49.6		0.0	
2001	2	41.4		1.3	
2001	3	45.8		1.4	
2001	4	48.8		0.0	
2001	5	61.5		0.0	
2001	6	50.2		0.0	
2001	7	52.0		0.0	
2001	8	53.2		0.0	
2001	9	49.1		0.0	
2001	10	52.0		0.0	
2001	11	49.5		1.8	
2001	12	46.0		0.0	
2002	1	45.0			
2002	2	42.6			
2002	3	48.0			
2002	4	46.7			
2002	5	55.8			
2002	6	47.2			
2002	7	48.0			
2002	8	48.1			
2002	9	46.2			
2002	10	47.0			
2002	11	43.9			
2002	12	44.3			
2003	1	49.5		0.0	
2003	2	41.1		0.0	
2003	3	44.0		0.0	
2003	4	45.6		0.0	
2003	5	51.1		0.0	

Madison County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
2003	6	48.2		0.0	
2003	7	49.8		0.0	
2003	8	45.5		0.0	
2003	9	45.4		0.0	
2003	10	46.9		0.0	
2003	11	43.2		0.0	
2003	12	43.7		0.0	
2004	1	43.4		0.8	
2004	2	41.6		2.8	
2004	3	48.2		1.3	
2004	4	47.4		1.3	
2004	5	51.7		1.3	
2004	6	45.7		2.0	
2004	7	44.9		2.5	
2004	8	44.0		3.3	
2004	9	42.0		0.9	
2004	10	44.3		2.1	
2004	11	44.5		2.1	
2004	12	44.7		0.6	
2005	1	45.6		1.1	
2005	2	40.7		1.3	
2005	3	43.6		1.7	
2005	4	43.0		2.0	
2005	5	45.7		2.6	
2005	6	42.7		2.6	
2005	7	45.9		2.8	
2005	8	45.8		2.6	
2005	9	44.7		2.7	
2005	10	43.6		2.8	
2005	11	43.8		1.9	
2005	12	42.0		1.6	
2006	1	40.4		10.9	
2006	2	36.8		12.8	
2006	3	41.2		13.8	
2006	4	41.9		14.3	
2006	5	41.7		17.8	
2006	6	42.3		24.8	
2006	7	41.9		19.9	
2006	8	42.4		23.3	
2006	9	36.7		17.4	
2006	10	35.2		9.9	
2006	11	33.9		10.3	
2006	12	36.6		11.2	
2007	1	33.9		13.9	
2007	2	31.7		14.1	
2007	3	35.0		19.2	
2007	4	37.2		28.2	
2007	5	42.0		17.5	
2007	6	36.5		22.8	
2007	7	36.7		20.8	
2007	8	40.9		20.2	
2007	9	36.6		16.6	
2007	10	37.7		16.6	
2007	11	34.4		14.8	
2007	12	33.9		11.4	

[1] Monthly estimates based on annual USGS (R Marella) reported data

Suwannee County Florida

Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1980	1	21.8		24.1	1
1980	2	23		24.1	1
1980	3	25.6		24.1	1
1980	4	28.7		24.1	1
1980	5	35		24.1	1
1980	6	35.9		24.1	1
1980	7	33		24.1	1
1980	8	32.1		24.1	1
1980	9	32		24.1	1
1980	10	30.7		24.1	1
1980	11	26.7		24.1	1
1980	12	26.3		24.1	1
1981	1	*36.6*	4	27.5	1
1981	2	*36.6*	4	27.5	1
1981	3	*36.6*	4	27.5	1
1981	4	*36.6*	4	27.5	1
1981	5	*36.6*	4	27.5	1
1981	6	*36.6*	4	27.5	1
1981	7	*36.6*	4	27.5	1
1981	8	*36.6*	4	27.5	1
1981	9	*36.6*	4	27.5	1
1981	10	*36.6*	4	27.5	1
1981	11	*36.6*	4	27.5	1
1981	12	*36.6*	4	27.5	1
1982	1	*38.6*	4	*29.0*	4
1982	2	*38.6*	4	*29.0*	4
1982	3	*38.6*	4	*29.0*	4
1982	4	*38.6*	4	*29.0*	4
1982	5	*38.6*	4	*29.0*	4
1982	6	*38.6*	4	*29.0*	4
1982	7	*38.6*	4	*29.0*	4
1982	8	*38.6*	4	*29.0*	4
1982	9	*38.6*	4	*29.0*	4
1982	10	*38.6*	4	*29.0*	4
1982	11	*38.6*	4	*29.0*	4
1982	12	*38.6*	4	*29.0*	4
1983	1	*38.6*	4	*29.0*	4
1983	2	*38.6*	4	*29.0*	4
1983	3	*38.6*	4	*29.0*	4
1983	4	*38.6*	4	*29.0*	4
1983	5	*38.6*	4	*29.0*	4
1983	6	*38.6*	4	*29.0*	4
1983	7	*38.6*	4	*29.0*	4
1983	8	*38.6*	4	*29.0*	4
1983	9	*38.6*	4	*29.0*	4
1983	10	*38.6*	4	*29.0*	4
1983	11	*38.6*	4	*29.0*	4

Suwannee County Florida

1983	12	*38.6*	4	*29.0*	4
1984	1	*38.6*	4	*29.0*	4
1984	2	*38.6*	4	*29.0*	4
1984	3	*38.6*	4	*29.0*	4
1984	4	*38.6*	4	*29.0*	4
1984	5	*38.6*	4	*29.0*	4
1984	6	*38.6*	4	*29.0*	4
1984	7	*38.6*	4	*29.0*	4
1984	8	*38.6*	4	*29.0*	4
1984	9	*38.6*	4	*29.0*	4
1984	10	*38.6*	4	*29.0*	4
1984	11	*38.6*	4	*29.0*	4
1984	12	*38.6*	4	*29.0*	4
1985	1	42.8		27.3	
1985	2	35		24.8	
1985	3	44.2		28.8	
1985	4	43.6		34.0	
1985	5	50.7		31.3	
1985	6	46.2		28.6	
1985	7	40.7		30.9	
1985	8	35.6		32.6	
1985	9	36.8		32.3	
1985	10	39.7		33.2	
1985	11	29.3		28.0	
1985	12	29.8		29.4	
1986	1	36.7		*25.0*	4
1986	2	33.6		*25.0*	4
1986	3	40.8		*25.0*	4
1986	4	53.1		*25.0*	4
1986	5	53.8		*25.0*	4
1986	6	40		*25.0*	4
1986	7	48.6		*25.0*	4
1986	8	41.4		*25.0*	4
1986	9	40.1		*25.0*	4
1986	10	38.7		*25.0*	4
1986	11	34.9		*25.0*	4
1986	12	34.6		*25.0*	4
1987	1	36		*25.0*	4
1987	2	33.1		*25.0*	4
1987	3	37.3		*25.0*	4
1987	4	44.4		*25.0*	4
1987	5	48.1		*25.0*	4
1987	6	45		*25.0*	4
1987	7	41.6		*25.0*	4
1987	8	42.6		*25.0*	4
1987	9	42.4		*25.0*	4
1987	10	45		*25.0*	4
1987	11	34.5		*25.0*	4
1987	12	35.6		*25.0*	4
1988	1	35.5		*25.0*	4
1988	2	31.2		*25.0*	4
1988	3	33.9		*25.0*	4
1988	4	38.9		*25.0*	4
1988	5	43.9		*25.0*	4
1988	6	47.5		*25.0*	4
1988	7	40.2		*25.0*	4
1988	8	40.7		*25.0*	4

Suwannee County Florida					
1988	9	38.4		*25.0*	4
1988	10	39.1		*25.0*	4
1988	11	35.7		*25.0*	4
1988	12	37.3		*25.0*	4
1989	1	36.1		17.4	
1989	2	35.6		16.1	
1989	3	39.2		19.8	
1989	4	43.3		19.8	
1989	5	47.2		22.8	
1989	6	41.6		21.5	
1989	7	38.9		20.2	
1989	8	41.2		25.2	
1989	9	39.5		22.9	
1989	10	40.1		21.5	
1989	11	35		20.1	
1989	12	41.2		23.0	
1990	1	35.2		22.7	
1990	2	32.5		18.7	
1990	3	40.4		23.6	
1990	4	42.5		25.2	
1990	5	48.9		28.3	
1990	6	42.8		30.2	
1990	7	41.7		31.4	
1990	8	46.1		32.1	
1990	9	46		29.6	
1990	10	40.9		24.6	
1990	11	39.2		25.9	
1990	12	39.3		23.7	
1991	1	37.5		*30.0*	4
1991	2	34.9		*30.0*	4
1991	3	37.5		*30.0*	4
1991	4	38.2		*30.0*	4
1991	5	41.6		*30.0*	4
1991	6	41.4		*30.0*	4
1991	7	39.7		*30.0*	4
1991	8	40		*30.0*	4
1991	9	40.8		*30.0*	4
1991	10	42.4		*30.0*	4
1991	11	41.5		*30.0*	4
1991	12	40.6		*30.0*	4
1992	1	38		*32.0*	4
1992	2	34		*32.0*	4
1992	3	37.3		*32.0*	4
1992	4	37.5		*32.0*	4
1992	5	51.5		*32.0*	4
1992	6	40.6		*32.0*	4
1992	7	46.2		*32.0*	4
1992	8	40		*32.0*	4
1992	9	41.3		*32.0*	4
1992	10	40.7		*32.0*	4
1992	11	36		*32.0*	4
1992	12	35.6		*32.0*	4
1993	1	35.8		*33.0*	4
1993	2	32.3		*33.0*	4
1993	3	37.6		*33.0*	4
1993	4	42.4		*33.0*	4
1993	5	55.4		*33.0*	4

Suwannee County Florida					
1993	6	48.4		*33.0*	4
1993	7	47.6		*33.0*	4
1993	8	49.4		*33.0*	4
1993	9	45.2		*33.0*	4
1993	10	43		*33.0*	4
1993	11	42		*33.0*	4
1993	12	43.7		*33.0*	4
1994	1	41.1		*34.0*	4
1994	2	36.6		*34.0*	4
1994	3	43.7		*34.0*	4
1994	4	47.3		*34.0*	4
1994	5	49.7		*34.0*	4
1994	6	44.7		*34.0*	4
1994	7	45.5		*34.0*	4
1994	8	46		*34.0*	4
1994	9	47.6		*34.0*	4
1994	10	43		*34.0*	4
1994	11	41.3		*34.0*	4
1994	12	41.3		*34.0*	4
1995	1	42.5		36.0	
1995	2	39.8		30.9	
1995	3	42.3		36.0	
1995	4	41.9		36.3	
1995	5	46.9		41.2	
1995	6	44.7		38.6	
1995	7	49.3		38.3	
1995	8	46.9		41.6	
1995	9	42.1		37.9	
1995	10	44.7		39.5	
1995	11	39.8		35.6	
1995	12	39.5		33.8	
1996	1	42.8		40.0	
1996	2	39.6		41.6	
1996	3	40.5		40.4	
1996	4	43.7		42.6	
1996	5	53.1		45.2	
1996	6	47.6		41.1	
1996	7	47.8		48.7	
1996	8	46.1		47.0	
1996	9	45.7		42.5	
1996	10	45.8		44.5	
1996	11	41.9		38.0	
1996	12	42.6		38.3	
1997	1	38.7		43.2	
1997	2	34.6		33.8	
1997	3	40.5		36.6	
1997	4	41.9		41.4	
1997	5	43.9		43.8	
1997	6	39		42.2	
1997	7	41.4		48.7	
1997	8	43.6		48.0	
1997	9	43.5		46.9	
1997	10	42.1		50.6	
1997	11	35		41.5	
1997	12	34.3		44.8	
1998	1	34.3		38.6	
1998	2	31.3		31.6	

Suwannee County Florida					
1998	3	37.5		38.1	
1998	4	42.2		41.5	
1998	5	58.6		43.2	
1998	6	65.2		48.8	
1998	7	48.5		47.2	
1998	8	44.8		46.9	
1998	9	42.1		46.4	
1998	10	39.1		48.5	
1998	11	39.1		39.1	
1998	12	39.5		43.7	
1999	1	39.2		41.4	
1999	2	34.8		38.0	
1999	3	39.1		50.7	
1999	4	48.4		47.9	
1999	5	52.4		46.1	
1999	6	42		47.9	
1999	7	41.3		47.9	
1999	8	41.5		52.5	
1999	9	42.1		49.2	
1999	10	45.5		44.5	
1999	11	37.8		39.8	
1999	12	37.9		50.6	
2000	1	37.8		49.7	
2000	2	37.3		46.9	
2000	3	40.4		51.8	
2000	4	40.1		45.5	
2000	5	52.6		54.9	
2000	6	47.1		50.2	
2000	7	47		51.5	
2000	8	46		53.7	
2000	9	40.4		48.5	
2000	10	45.2		50.8	
2000	11	39.4		49.1	
2000	12	39		48.6	
2001	1	38.9		48.9	
2001	2	33.3		41.4	
2001	3	36.2		44.6	
2001	4	41.8		44.5	
2001	5	52		46.1	
2001	6	39.2		45.8	
2001	7	38.3		46.7	
2001	8	41.4		45.7	
2001	9	38.6		45.0	
2001	10	41.7		45.0	
2001	11	41		42.4	
2001	12	39.9		43.0	
2002	1	40.6		44.3	
2002	2	36.4		43.2	
2002	3	38.1		44.6	
2002	4	41.1		42.1	
2002	5	51.6		46.3	
2002	6	42.3		44.8	
2002	7	44		44.8	
2002	8	43		45.1	
2002	9	42.3		46.0	
2002	10	43.9		45.8	
2002	11	38.9		43.8	

Suwannee County Florida					
2002	12	36.6		42.8	
2003	1	39.4		45.8	
2003	2	33.7		42.6	
2003	3	36.3		44.3	
2003	4	38.5		44.3	
2003	5	47.2		46.3	
2003	6	38.4		46.0	
2003	7	38.7		47.1	
2003	8	40.8		47.1	
2003	9	46.7		47.6	
2003	10	49.4		48.2	
2003	11	48		45.8	
2003	12	45.4		44.5	
2004	1	44.3		53.0	
2004	2	38.9		43.4	
2004	3	48		47.4	
2004	4	51.5		47.7	
2004	5	60.7		50.7	
2004	6	48.6		54.4	
2004	7	54.3		51.2	
2004	8	40.5		49.6	
2004	9	43.3		40.2	
2004	10	47.4		51.8	
2004	11	44.8		38.6	
2004	12	45		46.1	
2005	1	39.6		47.7	
2005	2	33.2		41.6	
2005	3	41.8		42.3	
2005	4	44.2		50.4	
2005	5	50.7		52.8	
2005	6	47.4		54.3	
2005	7	49.9		55.5	
2005	8	48.4		55.2	
2005	9	50.9		57.5	
2005	10	50.1		58.1	
2005	11	45.9		50.4	
2005	12	42.4		54.2	
2006	1	36.3		61.0	
2006	2	30.9		53.8	
2006	3	38.1		49.1	
2006	4	42.3		63.2	
2006	5	43.5		50.5	
2006	6	39.1		51.4	
2006	7	41.5		51.9	
2006	8	38.5		52.8	
2006	9	36.9		51.2	
2006	10	39.4		50.2	
2006	11	35.9		46.7	
2006	12	34.8		45.3	
2007	1	35.3		42.2	
2007	2	32.5		42.9	
2007	3	40.9		43.4	
2007	4	44.1		44.5	
2007	5	52.0		44.4	
2007	6	43.8		46.7	
2007	7	47.7		48.4	
2007	8	45.1		49.0	

Suwannee County Florida					
2007	9	39.6		48.8	
2007	10	39.4		48.6	
2007	11	36.3		42.0	
2007	12	42.8		41.9	

[1] Monthly estimates based on annual USGS (R Marella) reported data

[3] Interpolated estimate based on annual averages in years before and after

[4] Simple Interpolated estimates

Taylor County, Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1980	1	22.5		1557.0	1
1980	2	32.9		1557.0	1
1980	3	40.6		1557.0	1
1980	4	42.7		1557.0	1
1980	5	50.6		1557.0	1
1980	6	54.2		1557.0	1
1980	7	52.5		1557.0	1
1980	8	48.7		1557.0	1
1980	9	43.8		1557.0	1
1980	10	44.1		1557.0	1
1980	11	36.6		1557.0	1
1980	12	41.3		1557.0	1
1981	1	*46.8*	4	1472.2	1
1981	2	*46.8*	4	1472.2	1
1981	3	*46.8*	4	1472.2	1
1981	4	*46.8*	4	1472.2	1
1981	5	*46.8*	4	1472.2	1
1981	6	*46.8*	4	1472.2	1
1981	7	*46.8*	4	1472.2	1
1981	8	*46.8*	4	1472.2	1
1981	9	*46.8*	4	1472.2	1
1981	10	*46.8*	4	1472.2	1
1981	11	*46.8*	4	1472.2	1
1981	12	*46.8*	4	1472.2	1
1982	1	*46.8*	4	*1440.0*	4
1982	2	*46.8*	4	*1440.0*	4
1982	3	*46.8*	4	*1440.0*	4
1982	4	*46.8*	4	*1440.0*	4
1982	5	*46.8*	4	*1440.0*	4
1982	6	*46.8*	4	*1440.0*	4
1982	7	*46.8*	4	*1440.0*	4
1982	8	*46.8*	4	*1440.0*	4
1982	9	*46.8*	4	*1440.0*	4
1982	10	*46.8*	4	*1440.0*	4
1982	11	*46.8*	4	*1440.0*	4
1982	12	*46.8*	4	*1440.0*	4
1983	1	*46.8*	4	*1440.0*	4
1983	2	*46.8*	4	*1440.0*	4
1983	3	*46.8*	4	*1440.0*	4
1983	4	*46.8*	4	*1440.0*	4
1983	5	*46.8*	4	*1440.0*	4
1983	6	*46.8*	4	*1440.0*	4
1983	7	*46.8*	4	*1440.0*	4
1983	8	*46.8*	4	*1440.0*	4
1983	9	*46.8*	4	*1440.0*	4
1983	10	*46.8*	4	*1440.0*	4
1983	11	*46.8*	4	*1440.0*	4
1983	12	*46.8*	4	*1440.0*	4
1984	1	*46.8*	4	*1440.0*	4
1984	2	*46.8*	4	*1440.0*	4
1984	3	*46.8*	4	*1440.0*	4
1984	4	*46.8*	4	*1440.0*	4
1984	5	*46.8*	4	*1440.0*	4
1984	6	*46.8*	4	*1440.0*	4
1984	7	*46.8*	4	*1440.0*	4
1984	8	*46.8*	4	*1440.0*	4
1984	9	*46.8*	4	*1440.0*	4
1984	10	*46.8*	4	*1440.0*	4
1984	11	*46.8*	4	*1440.0*	4
1984	12	*46.8*	4	*1440.0*	4
1985	1	43.9		1399.0	
1985	2	35.6		1321.1	
1985	3	72		1430.8	
1985	4	42.8		1448.4	
1985	5	43.7		1408.1	
1985	6	48.4		1402.3	
1985	7	53		1479.3	
1985	8	48.2		1457.0	
1985	9	43.8		1417.5	
1985	10	49.3		1453.9	
1985	11	47		1281.0	
1985	12	47.9		1408.9	
1986	1	*45.75*	3	*1420.0*	4
1986	2	*45.75*	3	*1420.0*	4
1986	3	*45.75*	3	*1420.0*	4
1986	4	*45.75*	3	*1420.0*	4
1986	5	*45.75*	3	*1420.0*	4
1986	6	*45.75*	3	*1420.0*	4
1986	7	*45.75*	3	*1420.0*	4
1986	8	*45.75*	3	*1420.0*	4
1986	9	*45.75*	3	*1420.0*	4
1986	10	*45.75*	3	*1420.0*	4
1986	11	*45.75*	3	*1420.0*	4
1986	12	*45.75*	3	*1420.0*	4
1987	1	38.7		*1420.0*	4
1987	2	35.8		*1420.0*	4
1987	3	42.1		*1420.0*	4
1987	4	49.7		*1420.0*	4
1987	5	55.5		*1420.0*	4
1987	6	53.6		*1420.0*	4
1987	7	53.7		*1420.0*	4
1987	8	54.3		*1420.0*	4
1987	9	52.3		*1420.0*	4
1987	10	56.2		*1420.0*	4
1987	11	45.3		*1420.0*	4
1987	12	45		*1420.0*	4
1988	1	42.2		*1420.0*	4
1988	2	38		*1420.0*	4
1988	3	40		*1420.0*	4
1988	4	42.6		*1420.0*	4

Taylor County, Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1988	5	46.9		*1420.0*	4
1988	6	43.2		*1420.0*	4
1988	7	45.2		*1420.0*	4
1988	8	46.2		*1420.0*	4
1988	9	32.7		*1420.0*	4
1988	10	33.2		*1420.0*	4
1988	11	39.3		*1420.0*	4
1988	12	23.3		*1420.0*	4
1989	1	41.1		1484.7	
1989	2	32.9		1343.8	
1989	3	39.2		1471.4	
1989	4	41.8		1380.4	
1989	5	47.2		1436.4	
1989	6	42.6		1384.6	
1989	7	44.2		1481.1	
1989	8	44.4		1526.6	
1989	9	48.1		1474.3	
1989	10	50.7		1413.9	
1989	11	46		1406.6	
1989	12	53.1		1505.0	
1990	1	43.5		996.8	
1990	2	33.5		1415.8	
1990	3	40.5		1595.3	
1990	4	40.5		1437.1	
1990	5	47.9		1477.8	
1990	6	43.7		1473.5	
1990	7	40.1		1487.6	
1990	8	42.8		1412.6	
1990	9	47.7		1412.4	
1990	10	46.7		1139.0	
1990	11	43.6		1527.1	
1990	12	44.4		1519.6	
1991	1	43.2		*1430.0*	4
1991	2	38.5		*1430.0*	4
1991	3	41.3		*1430.0*	4
1991	4	44.4		*1430.0*	4
1991	5	49.1		*1430.0*	4
1991	6	50.9		*1430.0*	4
1991	7	43.5		*1430.0*	4
1991	8	44.4		*1430.0*	4
1991	9	44.6		*1430.0*	4
1991	10	42.1		*1430.0*	4
1991	11	43.9		*1430.0*	4
1991	12	41.1		*1430.0*	4
1992	1	42.5		*1430.0*	4
1992	2	38		*1430.0*	4
1992	3	44.4		*1430.0*	4
1992	4	43.6		*1430.0*	4
1992	5	49.1		*1430.0*	4
1992	6	38.1		*1430.0*	4
1992	7	49.8		*1430.0*	4
1992	8	41.5		*1430.0*	4
1992	9	42.2		*1430.0*	4
1992	10	36.8		*1430.0*	4
1992	11	25.2		*1430.0*	4
1992	12	35.3		*1430.0*	4

Taylor County, Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1993	1	27.8		*1430.0*	4
1993	2	33.5		*1430.0*	4
1993	3	35.7		*1430.0*	4
1993	4	35		*1430.0*	4
1993	5	47.4		*1430.0*	4
1993	6	46.6		*1430.0*	4
1993	7	40.3		*1430.0*	4
1993	8	43.8		*1430.0*	4
1993	9	36		*1430.0*	4
1993	10	38.5		*1430.0*	4
1993	11	32.7		*1430.0*	4
1993	12	36.9		*1430.0*	4
1994	1	36.8		*1430.0*	4
1994	2	29.8		*1430.0*	4
1994	3	40.7		*1430.0*	4
1994	4	48.2		*1430.0*	4
1994	5	54.3		*1430.0*	4
1994	6	42		*1430.0*	4
1994	7	41.8		*1430.0*	4
1994	8	40.3		*1430.0*	4
1994	9	41.7		*1430.0*	4
1994	10	43.2		*1430.0*	4
1994	11	44		*1430.0*	4
1994	12	45.1		*1430.0*	4
1995	1	76.1		1448.1	
1995	2	48.7		1348.7	
1995	3	57.3		1512.2	
1995	4	54.4		1460.0	
1995	5	65.3		1497.6	
1995	6	68.2		1427.4	
1995	7	61.7		1468.9	
1995	8	59.3		1480.6	
1995	9	58.2		1461.0	
1995	10	54.8		1465.2	
1995	11	52.2		1415.2	
1995	12	51		1427.3	
1996	1	50.5		1418.7	
1996	2	50.8		1302.3	
1996	3	50.7		1441.3	
1996	4	46.6		1367.1	
1996	5	56.7		1462.6	
1996	6	55.7		1392.1	
1996	7	60.4		1427.2	
1996	8	57.8		1403.0	
1996	9	55.2		1375.9	
1996	10	52.1		1250.6	
1996	11	49.4		1419.6	
1996	12	47.9		1427.5	
1997	1	47.3		1456.7	
1997	2	40.8		1205.4	
1997	3	48.9		1371.8	
1997	4	49.9		1392.6	
1997	5	55.9		1479.2	
1997	6	53.8		1358.8	
1997	7	59.6		1356.7	
1997	8	56.9		1459.0	

Taylor County, Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
1997	9	54.2		1372.2	
1997	10	57.4		1432.1	
1997	11	50.7		1426.7	
1997	12	50		884.2	
1998	1	46.6		1195.4	
1998	2	41.2		1159.6	
1998	3	47		1339.6	
1998	4	53.7		1370.3	
1998	5	50.1		1409.3	
1998	6	78.9		1353.0	
1998	7	64.7		1385.8	
1998	8	60.7		1424.5	
1998	9	52.6		1397.1	
1998	10	57.1		764.0	
1998	11	54.9		1287.2	
1998	12	49.6		1287.4	
1999	1	52		1345.1	
1999	2	43.3		1231.0	
1999	3	51.4		1357.1	
1999	4	61.5		1276.3	
1999	5	63.7		1346.6	
1999	6	55.1		1316.6	
1999	7	60		1326.4	
1999	8	60.4		1380.3	
1999	9	57.8		1245.3	
1999	10	46.1		1251.3	
1999	11	51.9		1366.2	
1999	12	49.5		1358.4	
2000	1	48.1		1239.6	
2000	2	38.4		1266.5	
2000	3	51.4		1288.6	
2000	4	58.5		1295.5	
2000	5	72.6		1301.1	
2000	6	57.9		1313.8	
2000	7	55.7		1266.6	
2000	8	55.2		1321.7	
2000	9	47.6		1288.3	
2000	10	51.7		1267.4	
2000	11	44		1253.2	
2000	12	52		1328.1	
2001	1	43.5		1262.3	
2001	2	43.7		1172.8	
2001	3	47.2		1303.1	
2001	4	54.1		1292.9	
2001	5	83.4		1302.5	
2001	6	46.4		1300.3	
2001	7	48.5		1267.9	
2001	8	48.1		1284.5	
2001	9	44.9		1265.7	
2001	10	46.2		1264.4	
2001	11	45.3		1270.1	
2001	12	45.2		1303.7	
2002	1	47.1		1303.0	
2002	2	39.5		1205.9	
2002	3	46.7		1279.6	
2002	4	57.3		1272.8	

Taylor County, Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2002	5	60.4		1335.4	
2002	6	52.1		1272.4	
2002	7	53.2		1299.2	
2002	8	50.9		1315.7	
2002	9	45.3		1241.9	
2002	10	50		1294.2	
2002	11	47		1264.2	
2002	12	48.8		1306.6	
2003	1	56		1274.0	
2003	2	46.6		1155.5	
2003	3	51		1265.4	
2003	4	54.6		1249.2	
2003	5	65.8		1333.6	
2003	6	50.8		1296.6	
2003	7	54.4		1349.1	
2003	8	46.1		1331.3	
2003	9	52.2		1315.3	
2003	10	53.2		1058.4	
2003	11	64.5		1305.4	
2003	12	70.3		1343.3	
2004	1	59.8		1372.7	
2004	2	51		1276.3	
2004	3	60.6		1329.9	
2004	4	66.2		1312.5	
2004	5	70.5		1378.9	
2004	6	62.6		1307.2	
2004	7	69		1230.0	
2004	8	62.5		1337.0	
2004	9	60		1291.9	
2004	10	61.2		1425.5	
2004	11	53.4		1365.9	
2004	12	62.8		1368.3	
2005	1	56.8		1302.5	
2005	2	57.5		1200.3	
2005	3	55		1271.1	
2005	4	57.4		1257.4	
2005	5	64.2		1303.8	
2005	6	64.4		1279.9	
2005	7	65.9		1295.0	
2005	8	67.2		1386.5	
2005	9	65.3		1344.2	
2005	10	62.9		1311.0	
2005	11	60.7		1265.9	
2005	12	58.9		1334.0	
2006	1	53.6		1161.5	
2006	2	50.2		1106.2	
2006	3	60.1		1157.1	
2006	4	68.9		1191.9	
2006	5	75.0		1204.7	
2006	6	73.8		1212.5	
2006	7	69.2		1219.8	
2006	8	68.4		1228.2	
2006	9	58.8		1128.6	
2006	10	61.8		1264.9	
2006	11	56.9		1189.9	
2006	12	59.8		1214.0	

Taylor County, Florida					
Yr	Mo	PubSupp	Estim	CommIndPowMin	Estim
2007	1	58.98		1236.5	
2007	2	57.12		1105.5	
2007	3	66.87		1183.3	
2007	4	67.11		1199.7	
2007	5	76.74		1249.3	
2007	6	72.43		1179.7	
2007	7	71.18		1212.0	
2007	8	69.43		1231.3	
2007	9	56.56		1155.6	
2007	10	61.96		1239.8	
2007	11	59.03		1241.1	
2007	12	59.03		1258.6	

Union County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1980	1	14.9		0.0	
1980	2	15.0		0.0	
1980	3	15.8		0.0	
1980	4	15.0		0.0	
1980	5	20.0		0.0	
1980	6	19.7		0.0	
1980	7	20.1		0.0	
1980	8	18.7		0.0	
1980	9	18.0		0.0	
1980	10	23.0		0.0	
1980	11	12.5		0.0	
1980	12	14.4		0.0	
1981	1	*15.0*	4	*0.2*	4
1981	2	*15.0*	4	*0.2*	4
1981	3	*15.0*	4	*0.2*	4
1981	4	*15.0*	4	*0.2*	4
1981	5	*15.0*	4	*0.2*	4
1981	6	*15.0*	4	*0.2*	4
1981	7	*15.0*	4	*0.2*	4
1981	8	*15.0*	4	*0.2*	4
1981	9	*15.0*	4	*0.2*	4
1981	10	*15.0*	4	*0.2*	4
1981	11	*15.0*	4	*0.2*	4
1981	12	*15.0*	4	*0.2*	4
1982	1	*15.5*	4	*0.2*	4
1982	2	*15.5*	4	*0.2*	4
1982	3	*15.5*	4	*0.2*	4
1982	4	*15.5*	4	*0.2*	4
1982	5	*15.5*	4	*0.2*	4
1982	6	*15.5*	4	*0.2*	4
1982	7	*15.5*	4	*0.2*	4
1982	8	*15.5*	4	*0.2*	4
1982	9	*15.5*	4	*0.2*	4
1982	10	*15.5*	4	*0.2*	4
1982	11	*15.5*	4	*0.2*	4
1982	12	*15.5*	4	*0.2*	4
1983	1	*15.5*	4	*0.4*	4
1983	2	*15.5*	4	*0.4*	4
1983	3	*15.5*	4	*0.4*	4

Union County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1983	4	*15.5*	4	*0.4*	4
1983	5	*15.5*	4	*0.4*	4
1983	6	*15.5*	4	*0.4*	4
1983	7	*15.5*	4	*0.4*	4
1983	8	*15.5*	4	*0.4*	4
1983	9	*15.5*	4	*0.4*	4
1983	10	*15.5*	4	*0.4*	4
1983	11	*15.5*	4	*0.4*	4
1983	12	*15.5*	4	*0.4*	4
1984	1	*15.5*	4	*0.4*	4
1984	2	*15.5*	4	*0.4*	4
1984	3	*15.5*	4	*0.4*	4
1984	4	*15.5*	4	*0.4*	4
1984	5	*15.5*	4	*0.4*	4
1984	6	*15.5*	4	*0.4*	4
1984	7	*15.5*	4	*0.4*	4
1984	8	*15.5*	4	*0.4*	4
1984	9	*15.5*	4	*0.4*	4
1984	10	*15.5*	4	*0.4*	4
1984	11	*15.5*	4	*0.4*	4
1984	12	*15.5*	4	*0.4*	4
1985	1	14.8		0.6	1
1985	2	14.1		0.6	1
1985	3	16.1		0.6	1
1985	4	14.9		0.6	1
1985	5	20.1		0.6	1
1985	6	15.9		0.6	1
1985	7	17.7		0.6	1
1985	8	17.5		0.6	1
1985	9	15.1		0.6	1
1985	10	14.7		0.6	1
1985	11	14.2		0.6	1
1985	12	13.5		0.6	1
1986	1	*19.8*	3	*0.3*	4
1986	2	*19.8*	3	*0.3*	4
1986	3	*19.8*	3	*0.3*	4
1986	4	*19.8*	3	*0.3*	4
1986	5	*19.8*	3	*0.3*	4
1986	6	*19.8*	3	*0.3*	4
1986	7	*19.8*	3	*0.3*	4
1986	8	*19.8*	3	*0.3*	4
1986	9	*19.8*	3	*0.3*	4
1986	10	*19.8*	3	*0.3*	4
1986	11	*19.8*	3	*0.3*	4
1986	12	*19.8*	3	*0.3*	4
1987	1	14.9		*0.3*	4
1987	2	13.2		*0.3*	4
1987	3	16.8		*0.3*	4
1987	4	17.1		*0.3*	4
1987	5	21.3		*0.3*	4
1987	6	21.0		*0.3*	4
1987	7	21.0		*0.3*	4
1987	8	21.3		*0.3*	4
1987	9	20.0		*0.3*	4
1987	10	20.7		*0.3*	4

Union County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1987	11	16.7		*0.3*	4
1987	12	17.1		*0.3*	4
1988	1	*19.0*	3	*0.3*	4
1988	2	*19.0*	3	*0.3*	4
1988	3	*19.0*	3	*0.3*	4
1988	4	*19.0*	3	*0.3*	4
1988	5	*19.0*	3	*0.3*	4
1988	6	*19.0*	3	*0.3*	4
1988	7	*19.0*	3	*0.3*	4
1988	8	*19.0*	3	*0.3*	4
1988	9	*19.0*	3	*0.3*	4
1988	10	*19.0*	3	*0.3*	4
1988	11	*19.0*	3	*0.3*	4
1988	12	*19.0*	3	*0.3*	4
1989	1	16.4		*0.3*	4
1989	2	17.2		*0.3*	4
1989	3	19.3		*0.3*	4
1989	4	16.9		*0.3*	4
1989	5	21.8		*0.3*	4
1989	6	20.3		*0.3*	4
1989	7	19.5		*0.3*	4
1989	8	19.0		*0.3*	4
1989	9	19.8		*0.3*	4
1989	10	18.4		*0.3*	4
1989	11	17.7		*0.3*	4
1989	12	16.7		*0.3*	4
1990	1	16.3		0.3	4
1990	2	15.0		0.2	1
1990	3	20.5		0.2	1
1990	4	18.1		0.2	1
1990	5	20.6		0.2	1
1990	6	20.9		0.2	1
1990	7	20.0		0.2	1
1990	8	17.4		0.2	1
1990	9	22.9		0.2	1
1990	10	18.7		0.2	1
1990	11	17.2		0.2	1
1990	12	22.3		0.3	1
1991	1	21.5			
1991	2	21.2			
1991	3	21.6			
1991	4	24.4			
1991	5	28.0			
1991	6	28.7			
1991	7	27.7			
1991	8	17.2			
1991	9	10.1			
1991	10	9.7			
1991	11	6.1			
1991	12	8.9			
1992	1	9.7			
1992	2	7.9			
1992	3	8.9			
1992	4	9.3			
1992	5	12.8			

Union County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1992	6	13.4			
1992	7	11.3			
1992	8	9.3			
1992	9	10.0			
1992	10	9.6			
1992	11	9.2			
1992	12	10.5			
1993	1	8.9			
1993	2	11.8			
1993	3	12.6			
1993	4	8.8			
1993	5	12.8			
1993	6	7.8			
1993	7	9.8			
1993	8	8.7			
1993	9	9.8			
1993	10	8.9			
1993	11	7.1			
1993	12	7.2			
1994	1	6.8			
1994	2	6.5			
1994	3	10.0			
1994	4	8.2			
1994	5	8.3			
1994	6	8.0			
1994	7	7.3			
1994	8	7.6			
1994	9	11.7			
1994	10	9.8			
1994	11	9.6			
1994	12	10.1			
1995	1	10.9		8.7	
1995	2	10.2		8.3	
1995	3	12.5		8.5	
1995	4	11.3		10.0	
1995	5	11.7		13.8	
1995	6	11.9		11.4	
1995	7	11.5		11.6	
1995	8	12.4		11.9	
1995	9	12.0		11.4	
1995	10	12.5		11.6	
1995	11	10.9		10.9	
1995	12	11.8		11.0	
1996	1	11.3		8.6	
1996	2	10.5		8.6	
1996	3	13.0		8.6	
1996	4	11.7		9.0	
1996	5	11.9		11.3	
1996	6	12.4		9.7	
1996	7	12.2		9.2	
1996	8	12.6		9.3	
1996	9	12.7		8.6	
1996	10	12.8		8.5	
1996	11	14.0		8.5	
1996	12	12.8		8.8	

Union County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
1997	1	12.7		8.5	
1997	2	11.4		7.5	
1997	3	13.0		9.1	
1997	4	12.9		9.7	
1997	5	13.8		9.9	
1997	6	12.5		9.6	
1997	7	13.4		9.4	
1997	8	13.7		10.4	
1997	9	13.4		9.8	
1997	10	15.3		9.3	
1997	11	15.2		8.7	
1997	12	15.4		9.5	
1998	1	15.8		8.9	
1998	2	12.2		8.5	
1998	3	15.9		9.3	
1998	4	16.2		10.4	
1998	5	19.2		15.2	
1998	6	16.8		13.5	
1998	7	17.2		11.4	
1998	8	16.5		10.6	
1998	9	15.9		10.6	
1998	10	16.8		10.6	
1998	11	16.5		10.1	
1998	12	16.5		10.1	
1999	1	14.8		10.2	
1999	2	11.1		9.1	
1999	3	12.0		11.5	
1999	4	13.1		14.0	
1999	5	13.2		12.8	
1999	6	11.8		11.7	
1999	7	12.9		12.0	
1999	8	13.2		12.2	
1999	9	19.7		10.8	
1999	10	7.2		10.8	
1999	11	7.4		10.0	
1999	12	6.9		10.6	
2000	1	10.4		11.0	
2000	2	9.9		11.2	
2000	3	14.3		12.5	
2000	4	12.7		11.4	
2000	5	13.7		15.5	
2000	6	9.9		13.0	
2000	7	8.4		12.2	
2000	8	12.6		12.8	
2000	9	11.3		11.7	
2000	10	12.8		12.2	
2000	11	7.4		11.8	
2000	12	7.2		12.4	
2001	1	7.0		12.7	
2001	2	6.1		11.3	
2001	3	6.8		12.3	
2001	4	6.7		12.7	
2001	5	8.7		15.2	
2001	6	8.4		12.4	
2001	7	7.5		12.5	

Union County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
2001	8	7.5		12.9	
2001	9	7.3		11.6	
2001	10	7.6		12.1	
2001	11	6.8		11.8	
2001	12	6.6		11.8	
2002	1	6.9		14.8	
2002	2	5.9		10.6	
2002	3	6.6		12.1	
2002	4	7.3		12.3	
2002	5	9.4		15.0	
2002	6	7.7		12.9	
2002	7	7.8		13.4	
2002	8	8.1		15.0	
2002	9	7.5		13.8	
2002	10	7.5		13.4	
2002	11	6.9		14.5	
2002	12	6.9		15.8	
2003	1	7.8		17.5	
2003	2	6.1		12.1	
2003	3	7.4		10.8	
2003	4	8.3		11.0	
2003	5	9.1		12.4	
2003	6	7.5		11.5	
2003	7	8.0		12.5	
2003	8	8.0		13.0	
2003	9	8.1		11.3	
2003	10	8.2		11.7	
2003	11	7.7		11.2	
2003	12	7.5		11.7	
2004	1	7.5		12.1	
2004	2	6.5		11.0	
2004	3	7.4		11.6	
2004	4	8.4		12.7	
2004	5	9.1		13.6	
2004	6	7.6		12.9	
2004	7	7.4		12.4	
2004	8	7.6		12.1	
2004	9	7.6		11.9	
2004	10	7.1		12.3	
2004	11	6.6		12.3	
2004	12	7.0		15.6	
2005	1	7.2		13.0	
2005	2	6.3		12.0	
2005	3	7.0		12.3	
2005	4	7.2		12.3	
2005	5	7.4		11.8	
2005	6	11.9		10.9	
2005	7	13.4		11.7	
2005	8	12.4		12.0	
2005	9	11.9		12.3	
2005	10	7.0		12.9	
2005	11	7.0		11.8	
2005	12	6.8		12.1	
2006	1	6.9		11.4	
2006	2	6.1		10.6	

Union County Florida					
Yr	Mo	PubSupp	Estim	CommInd PowMin	Estim
2006	3	7.1		11.8	
2006	4	7.5		12.3	
2006	5	8.8		12.5	
2006	6	8.3		12.6	
2006	7	8.4		12.7	
2006	8	8.8		13.8	
2006	9	8.2		12.3	
2006	10	8.9		13.4	
2006	11	7.6		12.9	
2006	12	7.2		13.2	
2007	1	7.4		12.6	
2007	2	7.6		10.7	
2007	3	7.9		11.0	
2007	4	7.9		12.0	
2007	5	10.2		14.5	
2007	6	8.0		14.0	
2007	7	8.0		15.2	
2007	8	8.3		15.2	
2007	9	8.1		13.9	
2007	10	7.7		14.4	
2007	11	7.2		14.0	
2007	12	7.4		14.0	

Appendix 15: NASS Planted Acres and Estimated Irrigation

Acres planted per crop per county from the online National Agricultural Statistical Service database (USDA 2009) with estimated irrigation water (USDA, 2003) based on rainfall for the year compared to 50 year average (USDC 2009). Italicized values are estimates.

Crop Acreage Sources: (USDA 2009); http://www.nass.usda.gov/

Irrigation application rate source: http://www.fl.nrcs.usda.gov/technical/irrigation.html (USDA, 2003)

Rainfall per year for normal/dry years: (USDC, 2009)

Alachua County, FL – acres planted and estimated irrigation (Mgal/Yr)

D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco	watermelons	Irrig Applied Watermelon
normal	29,000	5,815								
normal	30,000	6,016	18,000	3,756	2,024	415	2,024	390		
dry	16,000	3,512	13,000	3,255	2,070	491	1,220	253		
normal	8,000	1,604	8,400	1,753	1,520	311	1,210	233	3500	134
normal	12,000	2,406	7,000	1,461	1,530	313	1,070	206	4300	164
normal	13,000	2,607	10,000	2,087	1,800	369	930	179	4300	164
normal	10,500	2,105	7,000	1,461	1,400	287	740	143	4000	153
normal	7,500	1,504	5,000	1,043	1,400	287	1,310	252	3650	139
normal	4,000	802	3,000	626	1,600	328	710	137	3750	143
normal	5,000	1,003	4,000	835	1,700	348	865	167	3800	145
normal	5,000	1,003	4,500	939	1,900	389	805	155	3000	115
dry	5,200	1,141	2,400	601	1,750	415	820	170	2500	105
normal	6,800	1,364	1,000	209	2,300	471	885	171	3000	115
normal	6,600	1,323	*500*	104	400	82	909	175	3000	115
normal	5,200	1,043	*250*	52	1,700	348	900	173	3000	115
normal	4,500	902	*0*	0	1,700	348	860	166	2400	92
normal	8,500	1,704	0	0	1,600	328	890	171	1600	61
normal	7,800	1,564	0	0	1,500	307	860	166	1400	53
normal	10,400	2,085	0	0	1,600	328	1,030	198	1500	57
normal	5,800	1,163	0	0	2,800	574	950	183	2500	96
dry	4,800	1,054	0	0	2,300	546	800	166	2200	92
dry	*4,600*	1,010	0	0	*2,100*	498	*610*	126		
normal	5,000	1,003	0	0	1,800	369	670	129		
normal	4,900	983	0	0	1,200	246	670	129		
normal	5,200	1,043	0	0	3,700	758	620	119		
normal	5,800	1,163	0	0	5,800	1,188	550	106		
normal	5,800	1,163	0	0	6,400	1,311	*400*	77		
dry	*6,000*	1,317	0	0	4,300	1,021	*400*	83		
dry			0	0	3,500	831		0		

Baker County, FL – acres planted and estimated irrigation (Mgal/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco
1979	normal								
1980	normal	3,000	602						
1981	dry	3,000	658	1,500	376	0	0	170	35
1982	normal	1,000	201	2,000	417	0	0	155	30
1983	normal	500	100	1,500	313	0	0	150	29
1984	normal	800	160	2,000	417	0	0	115	22
1985	normal	400	80	1,000	209	0	0	110	21
1986	normal	200	40	500	104	0	0	165	32
1987	normal	0	0	250	52	0	0	0	0
1988	normal	0	0	0	0	0	0	115	22
1989	normal	0	0	0	0	0	0	130	25
1990	dry	0	0	0	0	0	0	130	27
1991	normal	0	0	0	0	0	0	105	20
1992	normal	0	0	0	0	0	0	150	29
1993	normal	0	0	0	0	0	0	120	23
1994	normal	0	0	0	0	0	0	110	21
1995	normal	0	0	0	0	0	0	110	21
1996	normal	0	0	0	0	0	0	100	19
1997	normal	0	0	0	0	0	0	120	23
1998	normal	0	0	0	0	0	0	130	25
1999	dry	0	0	0	0	0	0	100	21
2000	dry	0	0	0	0	0	0	90	19
2001	normal	0	0	0	0	0	0	0	0
2002	normal	0	0	0	0	0	0	0	0
2003	normal	0	0	0	0	0	0	0	0
2004	normal	0	0	0	0	0	0	0	0
2005	normal	0	0	0	0	0	0	0	0
2006	dry	0	0	0	0	0	0	0	0
2007	dry	0	0	0	0	0	0	0	0

Bradford, FL – acres planted and estimated irrigation (Mgal/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco	watermelons	Irrig Applied Watermelon
1979	normal										
1980	normal	3,000	602	500	104	0	0	0	0		
1981	dry	3,500	768	500	125	0	0	124	26		
1982	normal	1,500	301	600	125	0	0	120	23		
1983	normal	1,000	201	500	104	0	0	125	24		
1984	normal	1,000	201	500	104	0	0	90	17		
1985	normal	1,500	301	0	0	0	0	85	16		
1986	normal	7,500	1,504	0	0	0	0	185	36		
1987	normal	3,000	602	0	0	0	0	80	15		
1988	normal	0	0	0	0	0	0	95	18	300	11
1989	normal	0	0	0	0	0	0	110	21	300	11
1990	dry	0	0	0	0	0	0	95	20	400	17
1991	normal	0	0	0	0	0	0	95	18	400	15
1992	normal	0	0	0	0	0	0	112	22	400	15
1993	normal	0	0	0	0	0	0	100	19		
1994	normal	0	0	0	0	0	0	90	17		
1995	normal	0	0	0	0	0	0	100	19		
1996	normal	0	0	0	0	0	0	100	19		
1997	normal	0	0	0	0	0	0	100	19		
1998	normal	0	0	0	0	0	0	100	19		
1999	dry	0	0	0	0	0	0	0	0		
2000	dry	0	0	0	0	0	0	0	0		
2001	normal	0	0	0	0	0	0	0	0		
2002	normal	0	0	0	0	0	0	0	0		
2003	normal	0	0	0	0	0	0	0	0		
2004	normal	0	0	0	0	0	0	0	0		
2005	normal	0	0	0	0	0	0	0	0		
2006	dry	0	0	0	0	0	0	0	0		
2007	dry				0		0		0		

Colombia, FL – acres planted and estimated irrigation (Mgal/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco	cotton	Irrig Applied Cotton	Watermel	Irrig Applied Waterme
1979	normal												
1980	normal	31,000	6,216	5,500	1,148	755	155	755	145				
1981	dry	31,000	6,804	4,500	1,127	825	196	955	198				
1982	normal	14,000	2,807	6,000	1,252	830	170	985	190				
1983	normal	9,000	1,805	4,000	835	800	164	790	152			1800	69
1984	normal	14,500	2,908	4,000	835	1,100	225	680	131			2300	88
1985	normal	13,000	2,607	3,000	626	1,200	246	610	118			1800	69
1986	normal	10,000	2,005	2,000	417	1,500	307	1,180	227			1800	69
1987	normal	5,000	1,003	1,000	209	1,900	389	1,900	366			1700	65
1988	normal	5,000	1,003	2,500	522	2,250	461	630	121			1500	57
1989	normal	6,000	1,203	3,000	626	1,900	389	695	134			900	34
1990	dry	5,000	1,097	1,200	300	1,750	415	705	146			800	34
1991	normal	6,500	1,303	600	125	2,050	420	675	130			1000	38
1992	normal	7,600	1,524	500	104	1,200	246	794	153			1100	42
1993	normal	6,700	1,344	300	63	1,200	246	720	139			1500	57
1994	normal	3,900	782	0	0	1,800	369	660	127	1,100	292	1500	57
1995	normal	2,700	541	0	0	2,100	430	740	143	1,400	371	1200	46
1996	normal	5,200	1,043	0	0	2,000	410	720	139	500	133	1300	50
1997	normal	5,000	1,003	0	0	3,300	676	720	139	400	106	1200	46
1998	normal	6,600	1,323	0	0	4,200	860	630	121	300	80	1300	50
1999	dry	3,700	812	0	0	4,300	1,021	580	120			1200	50
2000	dry	2,600	571	0	0	4,300	1,021	430	89			900	38
2001	normal	1,600	321	0	0	4,300	881	440	85				
2002	normal	1,600	321	0	0	4,000	819	460	89				
2003	normal	1,200	241	0	0	4,000	819	440	85				
2004	normal	900	180	0	0	4,000	819	380	73				
2005	normal	750	150	0	0	4,700	963	120	23				
2006	dry	600	132	0	0	4,000	950	0	0				
2007	dry			0	0		0	0	0				

Gilchrist, FL – acres planted and estimated irrigation (Mgal/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco	watermelons	Irrig Applied Watermelon
1979	normal										
1980	normal	17,000	3,409	4,500	939	355	73	355	68		
1981	dry	17,000	3,731	5,000	1,252	410	97	240	50		
1982	normal	9,000	1,805	5,400	1,127	305	62	0	0	3000	115
1983	normal	5,000	1,003	4,500	939	300	61	185	36	3400	130
1984	normal	6,500	1,303	5,000	1,043	500	102	160	31	3400	130
1985	normal	7,000	1,404	4,000	835	400	82	145	28	3200	122
1986	normal	5,000	1,003	3,000	626	400	82	265	51	3000	115
1987	normal	6,900	1,384	2,000	417	400	82	115	22	3000	115
1988	normal	3,500	702	2,500	522	650	133	165	32	3000	115
1989	normal	4,000	802	2,500	522	500	102	160	31	2500	96
1990	dry	3,500	768	1,000	250	500	119	140	29	2000	84
1991	normal	5,400	1,083	1,000	209	800	164	130	25	2500	96
1992	normal	7,600	1,524	1,000	209	400	82	158	30	2700	103
1993	normal	8,900	1,785	500	104	400	82	155	30	2700	103
1994	normal	6,600	1,323	0	0	400	82	150	29	2200	84
1995	normal	6,600	1,323	0	0	500	102	140	27	1900	73
1996	normal	8,300	1,664	0	0	500	102	170	33	1700	65
1997	normal	9,700	1,945	0	0	700	143	210	40	1800	69
1998	normal	12,900	2,587	0	0	1,000	205	150	29	1800	69
1999	dry	7,300	1,602	0	0	1,200	285	140	29	1100	46
2000	dry	4,200	922	0	0	400	95	110	23		
2001	normal	2,400	481	0	0	800	164	50	10		
2002	normal	4,600	922	0	0	2,100	430	0	0		
2003	normal	4,700	942	0	0	2,300	471	0	0		
2004	normal	6,600	1,323	0	0	4,500	922	0	0		
2005	normal	7,200	1,444	0	0	3,700	758	0	0		
2006	dry	7,000	1,536	0	0	4,900	1,163	0	0		
2007	dry	7,000	1,536	0	0	4,700	1,116	0	0		

Hamilton County, FL – acres planted and estimated irrigation (Mgal/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco
1979	normal								
1980	normal	33,000	6,617	4,500	939	105	22	105	20
1981	dry	34,000	7,463	6,000	1,502	120	28	1,350	279
1982	normal	15,000	3,008	7,000	1,461	80	16	1,320	254
1983	normal	8,000	1,604	5,000	1,043	180	37	1,170	225
1984	normal	15,000	3,008	5,000	1,043	200	41	1,075	207
1985	normal	14,000	2,807	4,500	939	100	20	945	182
1986	normal	10,000	2,005	3,000	626	400	82	1,530	295
1987	normal	7,000	1,404	1,400	292	200	41	900	173
1988	normal	4,000	802	3,000	626	200	41	920	177
1989	normal	5,000	1,003	3,000	626	200	41	1,065	205
1990	dry	7,000	1,536	500	125	700	166	1,755	363
1991	normal	7,000	1,404	300	63	1,600	328	1,045	201
1992	normal	9,400	1,885	500	104	3,600	737	1,169	225
1993	normal	8,900	1,785	300	63	3,300	676	1,115	215
1994	normal	7,900	1,584	0	0	0	0	990	191
1995	normal	7,500	1,504	0	0	0	0	1,100	212
1996	normal	11,800	2,366	0	0	0	0	1,180	227
1997	normal	8,400	1,684	0	0	0	0	1,090	210
1998	normal	8,900	1,785	0	0	0	0	990	191
1999	dry	5,000	1,097	0	0	0	0	880	182
2000	dry	5,800	1,273	0	0	0	0	680	141
2001	normal	4,700	942	0	0	0	0	700	135
2002	normal	5,700	1,143	0	0	0	0	770	148
2003	normal	6,100	1,223	0	0	700	143	730	141
2004	normal	6,300	1,263	0	0	1,600	328	630	121
2005	normal	4,200	842	0	0	3,600	737	300	58
2006	dry	3,600	790	0	0	3,300	783	300	62
2007	dry	4,900	1,076	0	0	0	0	0	0

Lafayette County, FL – acres planted and estimated irrigation (Mgal/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco	watermelons	Irrig Applied Watermelon
1979	normal										
1980	normal	8,000	1,604		0	195	40	195	38		
1981	dry	8,000	1,756	1,000	250	210	50	845	175		
1982	normal	4,000	802	1,200	250	190	39	710	137	2,400	92
1983	normal	2,000	401	1,000	209	150	31	580	112	3,000	115
1984	normal	3,800	762	1,000	209	250	51	540	104	2,800	107
1985	normal	3,500	702	500	104	150	31	440	85	2,000	76
1986	normal	3,000	602	0	0	150	31	660	127	2,000	76
1987	normal	2,000	401	0	0	150	31	430	83	2,500	96
1988	normal	1,900	381	0	0	200	41	495	95	2,500	96
1989	normal	1,900	381	0	0	200	41	470	91	1,900	73
1990	dry	1,900	417	0	0	0	0	495	102	1,500	63
1991	normal	1,900	381	0	0	0	0	470	91	700	27
1992	normal	1,900	381	0	0	0	0	515	99	900	34
1993	normal	1,900	381	0	0	0	0	480	92	900	34
1994	normal	1,900	381	0	0	0	0	480	92	800	31
1995	normal	1,900	381	0	0	0	0	570	110		
1996	normal	1,900	381	0	0	0	0	630	121		
1997	normal	1,900	381	0	0	0	0	660	127		
1998	normal	2,600	521	0	0	0	0	530	102		
1999	dry	1,500	329	0	0	0	0	500	104		
2000	dry	900	198	0	0	0	0	380	79		
2001	normal	800	160	0	0	0	0	360	69		
2002	normal	1,200	241	0	0	0	0	380	73		
2003	normal	1,400	281	0	0	0	0	350	67		
2004	normal	1,400	281	0	0	0	0	330	64		
2005	normal			0	0	1,500	307				
2006	dry			0	0	1,600	380				
2007	dry			0	0						

Madison, FL – acres planted and estimated irrigation (Mgal/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	Pean uts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco	cotton	Irrig Applied Cotton	watermel	Irrig Applied Watermel
1979	normal												
1980	normal	36,000	7,219	23,000	4,799	245	50	245	47				
1981	dry	34,000	7,463	28,000	7,011	270	64	1,120	232				
1982	normal	17,000	3,409	36,000	7,512	422	86	1,150	222			1,000	38
1983	normal	8,000	1,604	32,000	6,677	800	164	910	175			1,300	50
1984	normal	16,500	3,309	30,000	6,260	750	154	810	156			900	34
1985	normal	15,000	3,008	24,000	5,008	400	82	740	143			500	19
1986	normal	11,500	2,306	13,500	2,817	800	164	1,310	252			500	19
1987	normal	5,500	1,103	10,400	2,170	500	102	595	115			500	19
1988	normal	4,000	802	8,500	1,774	750	154	755	145			500	19
1989	normal	4,000	802	9,000	1,878	600	123	745	144			400	15
1990	dry	5,000	1,097	7,700	1,928	600	142	800	166			400	17
1991	normal	5,000	1,003	5,000	1,043	1,600	328	785	151			500	19
1992	normal	8,000	1,604	4,800	1,002	500	102	897	173				
1993	normal	6,700	1,344	5,900	1,231	700	143	880	170				
1994	normal	5,700	1,143	2,500	522	900	184	800	154				
1995	normal	5,000	1,003	2,500	522	900	184	910	175				
1996	normal	7,500	1,504	1,000	209	800	164	870	168	1,800	477		
1997	normal	9,700	1,945	1,000	209	1,100	225	760	146	1,700	451		
1998	normal	13,000	2,607	2,500	522	800	164	690	133	2,100	557		
1999	dry	7,300	1,602	2,500	626	700	166	620	128	600	191		
2000	dry	5,700	1,251	1,000	250	400	95	500	104				
2001	normal	4,800	963	500	104	500	102	510	98				
2002	normal	5,600	1,123	1,000	209	900	184	560	108				
2003	normal	5,500	1,103	2,500	522	2,400	492	500	96				
2004	normal	3,900	782	2,600	542	3,000	615	490	94				
2005	normal	3,900	782	1,100	230	8,000	1,639	200	39				
2006	dry	5,000	1,097	1,000	250	7,200	1,709	200	41				
2007	dry	6,900	1,514	1,600	401			200	41				

Suwannee, FL – acres planted and estimated irrigation (Mgal/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco	cotton	Irrig Applied Cotton	watermel	Irrig Applied Watermel
1979	normal												
1980	normal	52,000	10,427	9,000	1,878	1,420	291	1,420	274				
1981	dry	51,000	11,194	12,000	3,005	1,570	373	2,400	497				
1982	normal	22,000	4,412	15,000	3,130	1,435	294	2,250	433			2,900	111
1983	normal	11,000	2,206	12,000	2,504	3,500	717	1,870	360			3,800	145
1984	normal	19,500	3,910	15,000	3,130	4,500	922	1,760	339			2,400	92
1985	normal	17,000	3,409	10,000	2,087	4,100	840	1,490	287			2,300	88
1986	normal	14,000	2,807	7,000	1,461	4,100	840	2,500	482			2,700	103
1987	normal	10,000	2,005	3,900	814	3,600	737	1,450	279			4,000	153
1988	normal	8,000	1,604	5,000	1,043	4,100	840	1,560	301			4,500	172
1989	normal	7,000	1,404	5,500	1,148	4,100	840	1,695	327			3,000	115
1990	dry	5,500	1,207	3,700	926	4,500	1,068	1,755	363			1,900	80
1991	normal	5,500	1,103	2,500	522	6,050	1,239	1,630	314			2,500	96
1992	normal	8,500	1,704	1,700	355	4,300	881	1,879	362			2,000	76
1993	normal	6,000	1,203	1,400	292	4,200	860	1,795	346			1,800	69
1994	normal	5,300	1,063	1,100	230	4,800	983	1,580	304	1,150	305	1,600	61
1995	normal	6,400	1,283	1,200	250	4,700	963	1,820	351	2,300	610	1,800	69
1996	normal	10,600	2,126	400	83	4,800	983	1,900	366	1,600	424	1,600	61
1997	normal	11,700	2,346		0	5,000	1,024	1,730	333			1,700	65
1998	normal	15,600	3,128		0	5,700	1,168	1,590	306			1,000	38
1999	dry	8,800	1,932		0	4,900	1,163	1,410	292			800	34
2000	dry	8,900	1,953		0	4,600	1,092	1,050	217				
2001	normal	6,500	1,303		0	4,300	881	1,060	204				
2002	normal	7,700	1,544		0	4,000	819	990	191				
2003	normal	6,900	1,384		0	4,100	840	1,070	206				
2004	normal	7,500	1,504	1,200	250	4,700	963	1,000	193				
2005	normal	6,600	1,323	400	83	9,100	1,864	460	89				
2006	dry	7,100	1,558	0	0	9,600	2,279	500	104				
2007	dry	7,100	1,558	0	0								

Union Acres planted, Irrigation estimated (M Ga/Yr)

	D-W Year	corn	Irrig Applied Corn	soy	Irrig Applied Soy	peanuts	Irrig Applied Peanut	tobacco	Irrig Applied Tobacco	watermelons	Irrig Applied Watermelon
1979	normal										
1980	normal	6,500	1,303	2,000	417					0	0
1981	dry	7,000	1,536	2,000	501	0	0	285	59	0	0
1982	normal	3,500	702	2,100	438	0	0	310	60	1,200	46
1983	normal	2,000	401	2,000	417	0	0	235	45	1,600	61
1984	normal	3,000	602	2,500	522	0	0	210	40	1,200	46
1985	normal	3,000	602	2,000	417	0	0	150	29	700	27
1986	normal	2,500	501	0	0	0	0	330	64	700	27
1987	normal	1,500	301	0	0	0	0	155	30	700	27
1988	normal	1,300	261	0	0	0	0	190	37	700	27
1989	normal	1,700	341	0	0	0	0	210	40	500	19
1990	dry	1,000	219	0	0	0	0	200	41	400	17
1991	normal	900	180	0	0	0	0	180	35	500	19
1992	normal	500	100	0	0	0	0	238	46		
1993	normal	0	0	0	0	0	0	210	40		
1994	normal	0	0	0	0	0	0	190	37		
1995	normal	0	0	0	0	0	0	200	39		
1996	normal	0	0	0	0	0	0	190	37		
1997	normal	0	0	0	0	0	0	230	44		
1998	normal	1,700	341	0	0	0	0	200	39		
1999	dry	1,000	219	0	0	0	0	170	35		
2000	dry	900	198	0	0	0	0	130	27		
2001	normal	500	100	0	0	0	0	150	29		
2002	normal	0	0	0	0	0	0	160	31		
2003	normal	0	0	0	0	0	0	150	29		
2004	normal	0	0	0	0	0	0	150	29		
2005	normal	0	0	0	0	0	0	0	0		
2006	dry	0	0	0	0	0	0	0	0		
2007	dry	0	0	0	0	0	0	0	0		

Taylor, FL – acres planted and estimated irrigation (Mgal/Yr)

	corn	soy	peanuts	tobacco	watermelons
1979					
1980	1900			0	
1981	2000	1000		200	
1982	1000	1200		170	
1983	600	1000		130	
1984	1000	1000		115	
1985	1000	500		140	
1986				210	
1987				110	
1988				115	
1989				120	
1990				110	
1991				115	
1992				112	
1993				115	
1994				110	
1995				100	
1996				110	
1997				100	
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					

Acreage is so low, irrigation water was not estimated.

Atkinson, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn	Corn Irrig	Cotton	Cotto n Irrig	Oats	Oats Irrig	Peanuts	Peanu ts Irrig	Rye	Rye Irrig	Sorghu m	Sorghu m Irrig	Soybea ns	Soybean Irrig	Tobacco Harveste d	Tobacc o Irrig	Wheat (All)	Wheat Irrig	Total AG Irrigati on
1980	15300	3068		0		0		0	3300	0	270	59	10500	2191	1000	193	500	0	5511
1981	14000	3073		0	310	0		0	2900	0	340	84	10500	2629	1000	207	760	0	5993
1982	11500	2306		0	290	0		0	2900	0	280	62	12500	2608	905	174	1400	0	5150
1983	8800	1765	63	17	310	0		0	2800	0		0	14000	2921	860	166	1300	0	4868
1984	13000	2607	310	82	200	0		0	3400	0	150	33	12500	2608	730	141	1200	0	5471
1985	12500	2507	385	102		0		0	3300	0	180	40	11500	2400	695	134	1100	0	5182
1986	9900	1985	275	73		0		0	4200	0	150	33	5500	1148	610	118	900	0	3356
1987	7200	1444	1150	305		0		0	4000	0	130	29	4000	835	615	118	290	0	2730
1988	6100	1223	1150	305		0		0	4600	0		0	7500	1565	750	144	300	0	3237
1989	6600	1323	830	220		0		0	2000	0	100	22	7500	1565	775	149	1500	0	3280
1990	7400	1624	740	236		0		0	2000	0		0	4500	1127	820	170	1200	0	3156
1991	8100	1624	950	252		0	11800	2417	2600	0		0	1900	396	750	144	2100	0	4834
1992	10700	2146	2350	623		0	5100	1045	3700	0		0	3700	772	840	162	1700	0	4747
1993	7700	1544	4400	1166		0	5500	1127	3500	0		0	3500	730	840	162	1300	0	4729
1994	6600	1323	9200	2438		0	3110	637	3000	0		0	2500	522	710	137	1800	0	5057
1995	4000	802	14800	3922		0	1900	389	3600	0		0	800	167	830	160	1000	0	5440
1996	8300	1664	11800	3127		0	1750	359	3700	0		0	900	188	870	168	1200	0	5505
1997	7000	1404	12700	3366		0	2200	451	3500	0		0	2000	417	850	164	1200	0	5801
1998	6000	1203	12500	3313		0	2150	440	3400	0		0	1100	230	760	146	700	0	5332
1999	2000	439	15000	4776		0	3000	712	3200	0		0	1800	451	650	135		0	6512
2000	2100	421	14000	3710		0	3400	697		0		0	1200	250	630	121	700	0	5200
2001	2300	461	12500	3313		0	4600	942	1500	0		0	1100	230	510	98		0	5044
2002	3500	702	11000	2915		0	5800	1188	1700	0		0		0	550	106	1700	0	4911
2003	3700	742	8900	2359		0	7700	1577		0		0	500	104	550	106	2300	0	4888
2004	3000	602	9200	2438		0	9700	1987		0		0	500	104		0	2800	0	5131
2005	2700	541	8100	2147		0	10600	2172		0		0		0	740	143	1900	0	5002
2006	2500	549	9500	3025		0	8900	2113		0		0		0	1400	290	2500	0	5976
2007	5700	1251	5000	1592		0	8500	2018		0		0		0	1980	410	2000	0	5271

Ben Hill, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn	Corn Irrig	Cotton	Cotton Irrig	Oats	Oats Irrig	Peanuts	Peanuts Irrig	Rye	Rye Irrig	Sorghum	Sorghum Irrig	Soybeans	Soybeans Irrig	Tobacco Harvested	Tobacc Irrig	Wheat (All) Planted	Wheat Irrig	Total AG Irrigation
1980	18000	3609	155	41		0		0	3100	0	460	101	6100	1273	590	114	400	0	**5138**
1981	23500	5158	580	185		0		0	6000	0	700	172	5800	1452	650	135	2800	0	**7102**
1982	12500	2507	380	101		0		0	5200	0	590	130	6100	1273	640	123	2500	0	**4133**
1983	12000	2406	130	34		0		0	4200	0	200	44	4900	1022	525	101	3400	0	**3608**
1984	14500	2908	255	68		0		0	4100	0	350	77	4000	835	430	83	2800	0	**3970**
1985	13500	2707	695	184		0		0	2800	0	250	55	3100	647	435	84	1700	0	**3677**
1986	11500	2306	775	205		0		0	2800	0	200	44	1400	292	325	63	1200	0	**2910**
1987	8500	1704	1100	292		0		0	2200	0	150	33	2400	501	385	74	400	0	**2604**
1988	8600	1725	1600	424		0		0	3200	0	100	22	2000	417	480	92	500	0	**2680**
1989	9200	1845	1340	355	300	0		0	2700	0	300	66	2600	542	460	89	1600	0	**2897**
1990	9600	2107	2300	732	200	0		0	1800	0	400	98	1500	376	480	99	1300	0	**3413**
1991	10200	2045	2250	596	800	0	11500	2356	1900	0	700	154	1000	209	450	87	800	0	**5447**
1992	11000	2206	2300	610	600	0	9100	1864	2500	0	450	99	1200	250	480	92	300	0	**5121**
1993	10000	2005	3350	888		0	9400	1926	2400	0			1200	250	510	98	500	0	**5167**
1994	9400	1885	5850	1550		0	9240	1893	2700	0			1000	209	430	83	600	0	**5620**
1995	5800	1163	12500	3313		0	8080	1655	1600	0			550	115	500	96		0	**6342**
1996	8000	1604	10300	2730		0	7300	1495	2000	0			1100	230	520	100	500	0	**6159**
1997	7900	1584	12200	3233	350	0	7100	1455	1800	0			1000	209	540	104	1000	0	**6585**
1998	7500	1504	10500	2783		0	7100	1455	1700	0				0	460	89	600	0	**5830**
1999	5500	1207	13000	4139		0	7000	1662	1000	0				0				0	**7008**
2000	5500	1103	13000	3445		0	6100	1250	2500	0				0			600	0	**5798**
2001	4300	862	13000	3445		0	6400	1311	2000	0				0			1000	0	**5619**
2002	5900	1183	11500	3048		0	5600	1147		0				0			1500	0	**5378**
2003	4700	942	11300	2995		0	5800	1188		0			600	125			2300	0	**5251**
2004	5000	1003	9900	2624		0	6700	1373	2000	0			1200	250			2300	0	**5249**
2005	4600	922	8300	2200		0	8200	1680	2500	0			600	125			1800	0	**4927**
2006	4400	966	9800	3120		0	6800	1614	2600	0			800	200			2200	0	**5901**
2007	6800	1493	7300	2324		0	5500	1306		0								0	**5122**

Berrien, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cotton Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Peanuts Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorghum Irrig	Soybeans Planted	Soybeans Irrig	Tobacco Harvested	Tobacco Irrig	Wheat (All) Planted	Wheat Irrig	Total AG
1980	39100	7840		0	240	0		0	1200	0	860	189	24000	5008	3240	624	800	0	13662
1981	37000	8121	415	132	220	0		0	1500	0	1200	295	24500	6134	2970	615	3500	0	15298
1982	18500	3710	540	143		0		0	2200	0	880	194	27500	5738	2740	528	5100	0	10312
1983	16500	3309	96	25		0		0	2200	0	660	145	23000	4799	2540	489	2800	0	8768
1984	22500	4512	185	49		0		0	2500	0	830	183	25000	5216	2160	416	4000	0	10376
1985	24500	4913	1980	525		0		0	2000	0	770	169	24000	5008	2160	416	3500	0	11031
1986	21000	4211	1750	464		0		0		0	640	141	15000	3130	1860	358	1600	0	8304
1987	14000	2807	6950	1842		0		0	1500	0	550	121	9000	1878	1870	360	1100	0	7008
1988	9700	1945	6700	1776	200	0		0	2000	0	420	92	8300	1732	2150	414	2000	0	5959
1989	11000	2206	3800	1007	550	0		0	2000	0	600	132	14000	2921	2400	462	4000	0	6728
1990	13400	2941	4600	1465	300	0		0	2000	0	400	98	9500	2379	2400	497	5100	0	7380
1991	12600	2527	6000	1590	500	0	26300	5388	2000	0	700	154	4000	835	2300	443	3400	0	10936
1992	19000	3810	6850	1815	600	0	14200	2909	2200	0	800	176	6700	1398	2400	462	2600	0	10571
1993	16000	3208	10900	2889	500	0	14700	3011	4000	0	700	154	7000	1461	2450	472	2100	0	11195
1994	14200	2847	20500	5433	650	0	12010	2460	3800	0		0	5200	1085	2180	420	2100	0	12246
1995	8000	1604	34000	9011		0	9000	1844	3400	0		0	1800	376	2480	478	1300	0	13312
1996	12000	2406	30300	8030		0	7200	1475	3100	0		0	2300	480	2520	486	2000	0	12877
1997	9000	1805	30000	7950		0	7600	1557	3000	0	500	110	4600	960	2530	487	1600	0	12869
1998	9500	1905	28000	7420		0	9600	1967	3000	0			3000	626	2400	462	1500	0	12380
1999	5000	1097	32500	10348		0	10500	2492	2300	0			3100	776	1930	400	1700	0	15114
2000	5300	1063	33500	8878		0	9300	1905		0			2500	522	1810	349	1800	0	12716
2001	4200	842	30000	7950		0	12900	2643	2500	0			1700	355	1490	287	4700	0	12077
2002	5000	1003	30500	8083		0	11000	2253	2000	0			1600	334	1560	301	4700	0	11973
2003	6500	1303	28100	7447		0	12400	2540		0			1500	313	1690	326	5500	0	11929
2004	6000	1203	25500	6758		0	16000	3278	2000	0			2000	417	1330	256	1300	0	11912
2005	6000	1203	22800	6042		0	19300	3954	1500	0			1100	230	810	156	700	0	11585
2006	5800	1273	26500	8438		0	14500	3442	1700	0			1700	426	900	186	1000	0	13765
2007	11000	2414	20300	6464		0	14000	3323	1800	0			1400	351	1260	261	1000	0	12813

Brantley, GA - acres planted and estimated irrigation (Mgal/Yr)

Brantley	Corn Planted	Corn Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Peanuts Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorghum Irrig	Soybeans Planted	Soybeans Irrig	Wheat (All) Planted	TOTAL AG
1980	4860	975		0		0			890	196	720	150	300	1321
1981	6500	1427		0		0	400		920	226	840	210	180	1863
1982	3000	602		0		0			1800	396	645	135	300	1132
1983	2500	501	200	0		0			1300	286	640	134	230	921
1984	3200	642	230	0		0			2000	440	470	98	200	1180
1985	3500	702		0		0			1500	330	490	102		1134
1986	3500	702		0		0			1000	220	430	90		1012
1987	2800	561		0		0			450	99	420	88	150	748
1988	2500	501		0		0			400	88	550	115	150	704
1989	2400	481	150	0		0			600	132	560	117		730
1990	2300	505		0		0			300	74	590	148		726
1991	1300	261		0		0			300	66	570	119		446
1992	1300	261	200	0		0			200	44	650	136		440
1993	1300	261		0		0					580	121		382
1994	1300	261		0		0					510	106		367
1995	1200	241		0		0					580	121		362
1996	1900	381		0		0					580	121		502
1997	2500	501	300	0		0					610	127		629
1998	2500	501		0		0					560	117		618
1999	900	198		0		0								198
2000	1200	241		0		0								241
2001	800	160		0		0								160
2002	1200	241		0		0								241
2003	1000	201		0		0								201
2004	900	180		0		0								180
2005	800	160		0	1000	205								365
2006	850	187		0	900	214								400
2007	900	198		0	400	95								292

Brooks, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cotton Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Peanuts Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorghum Irrig	Soybeans Planted	Soybeans	Tobacco) Harvested	Tobacco Irrig	Wheat Planted	Wheat Irrig	total Ag
1980	43400	8703	7250	1921	2800	0		0	5900	0	1500	330	33000	6886	1460	281	2500	0	18121
1981	43000	9438	15500	4935	2800	0		0	4500	0	2700	664	35000	8763	1650	342	4200	0	24142
1982	28000	5615	16800	4452	2700	0		0	4900	0	1800	396	37500	7824	1390	268	7000	0	18555
1983	27500	5514	13100	3472	3000	0		0	4100	0	890	196	29500	6155	1320	254	2600	0	15592
1984	36000	7219	24400	6466	1700	0		0	4800	0	1100	242	27500	5738	1160	223	4600	0	19889
1985	30500	6116	25600	6784	1600	0		0	5200	0	1500	330	27500	5738	1100	212	6500	0	19180
1986	24500	4913	21600	5724	760	0		0	6400	0	1800	396	18500	3860	885	171	3600	0	15064
1987	15500	3108	22500	5963	750	0		0	5200	0	800	176	12000	2504	860	166	3000	0	11917
1988	14000	2807	26400	6996	1600	0		0	5600	0	600	132	12500	2608	1080	208	3000	0	12752
1989	15000	3008	21000	5565	960	0		0	2700	0	900	198	18500	3860	1160	223	4500	0	12855
1990	17200	3775	24000	7642	1000	0		0	2200	0	900	221	10500	2629	1200	248	3500	0	14516
1991	14700	2948	26500	7023	1800	0	11400	2335	2800	0	1200	264	6000	1252	1150	222	3600	0	14044
1992	17500	3509	25200	6678	600	0	8000	1639	3000	0	1500	330	5600	1168	1280	247	3200	0	13572
1993	16500	3309	30000	7950	600	0	7700	1577	2000	0	1000	220	5000	1043	1220	235	2500	0	14335
1994	14100	2827	36000	9541	700	0	7200	1475	1600	0	1100	242	3000	626	1020	197	2800	0	14907
1995	9700	1945	45700	12111		0	6630	1358	2400	0	1500	330	1000	209	1200	231	1700	0	16184
1996	12500	2507	45200	11979	500	0	5900	1209	1800	0	700	154	2200	459	1340	258	2000	0	16565
1997	12000	2406	42000	11131	850	0	6150	1260	2600	0	800	176	5600	1168	1170	225	2000	0	16367
1998	10000	2005	45500	12058	600	0	5700	1168	2400	0	1400	308	3000	626	1050	202	1000	0	16367
1999	8300	1822	46000	14646	700	0	6300	1495	2500	0	1800	442	1700	426	960	199	1500	0	19030
2000	7600	1524	47500	12588	900	0	5400	1106	5800	0	1200	264	1000	209	720	139	2000	0	15830
2001	6700	1344	43500	11528	1800	0	6000	1229	6000	0	2700	594	1000	209	650	125	2200	0	15029
2002	7000	1404	45000	11926		0	6500	1332	6000	0			1000	209	640	123	2200	0	14993
2003	6400	1283	39500	10468		0	11200	2294		0			1600	334	610	118	4500	0	14497
2004	5500	1103	37300	9885		0	16000	3278		0			2200	459	530	102	4700	0	14827
2005	5000	1003	34200	9064		0	19600	4015	5000	0			700	146			8000	0	14227
2006	6200	1361	40000	12736		0	10800	2564	4800	0			1100	275			3500	0	16936
2007	7400	1624	39000	12418			7800	1852		0			3700	926			3000	0	16820

Charlton, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	**Corn Irrig**	**Tobacco Harvested**	Tobacco Irrig	TOTAL AG
1980	1150	231	150	31	262
1981	1400	307	135	28	335
1982	840	168	105	22	190
1983	950	190	100	21	211
1984	950	190	75	16	206
1985	840	168	90	19	187
1986	820	164	60	12	177
1987	900	180	75	16	196
1988	500	100	80	17	117
1989	460	92	90	19	111
1990	450	99	90	19	117
1991	600	120	90	19	139
1992	500	100	90	19	119
1993		0	90	19	19
1994		0	80	17	17
1995		0	90	19	19
1996		0	100	21	21
1997	800	160	90	19	179
1998	500	100	100	21	121
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					

Clinch, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Plant ed	Corn Irrig	Cotton Planted	Cotton Irrig	Peanuts Planted	Peanuts Irrig	Rye Planted	Rye Irrig	Soybeans Planted	Soyb Irrig	Tobacco Harvested	Tobacco Irrig	Wheat (All) Planted	Wheat Irrig	Total AG
1980	1960	393		0		0	500	0	400	83	160	31	100	0	507
1981	4200	922		0		0		0	400	100	190	39		0	1061
1982	2400	481		0		0		0	800	167	165	32	200	0	680
1983	2100	421		0		0		0	500	104	140	27			552
1984	3100	622		0		0		0	900	188	120	23			833
1985	3500	702		0		0		0	300	63	135	26			790
1986	2000	401		0		0		0		0	115	22			423
1987	1100	221		0		0		0	200	42	80	15			278
1988	920	184		0		0		0	100	21	120	23			228
1989	700	140		0		0		0			135	26			166
1990	700	154		0		0		0			170	35			189
1991	900	180		0	140	29		0			140	27			236
1992	1000	201	50	13		0	1000	0			170	33			247
1993	700	140		0		0	800	0			150	29			169
1994	700	140		0		0	700	0			130	25			165
1995	800	160		0		0	900	0			140	27			187
1996	900	180		0		0	1400	0			170	33			213
1997	1200	241		0		0	1000	0			150	29			270
1998	900	180		0		0		0			130	25			206
1999	500	110		0		0	600	0							110
2000	500	100		0		0		0							100
2001		0		0		0		0							0
2002	500	100		0		0		0							100
2003	500	100		0		0		0							100
2004															0
2005															0
2006															0
2007			250	2937.5											2938

Colquitt, GA - acres planted and estimated irrigation (Mgal/Yr)

Corn Planted	Corn Irrig	Cotton Planted	Cotton Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Peanuts Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorghum Irrig	Soybeans Planted	Soybean Irrig	Tobacco Harvested	Tobacc Irrig	Wheat (All) Planted	Wheat Irrig	Total AG
56000	11229	7850	2080	1500	0		0	4300	0	3200	704	25500	5321	4020	775	5600	0	20109
48000	10536	11200	3566	2000	0		0	7900	0	3000	737	30000	7512	4200	870	9400	0	23220
29500	5915	12300	3260	2000	0		0	8500	0	3400	748	30500	6364	3820	736	13500	0	17023
26500	5314	7650	2027	1900	0		0	7000	0	1700	374	32500	6781	3180	613	9300	0	15109
22500	4512	14100	3737	1800	0		0	8000	0	2500	550	33500	6990	2950	568	10500	0	16357
22000	4412	18200	4823	1600	0		0	7600	0	2500	550	30500	6364	2790	538	11500	0	16686
22000	4412	17700	4691	1000	0		0	6500	0	2900	638	20000	4173	2610	503	6300	0	14416
17000	3409	20500	5433	830	0		0	8000	0	1200	264	16000	3338	2470	476	6400	0	12920
14500	2908	27400	7261	800	0		0	7800	0	600	132	19000	3964	2900	559	4000	0	14824
13000	2607	23000	6095	800	0		0	6500	0	900	198	22000	4590	3100	597	9600	0	14088
11000	2414	27300	8692	550	0		0	5800	0	700	172	16500	4131	3200	662	7000	0	16073
9400	1885	31500	8348	900	0	25800	5285	5400	0	600	132	5800	1210	3000	578	3600	0	17439
12000	2406	31000	8216	750	0	16700	3421	6000	0	1100	242	7600	1586	3420	659	2800	0	16530
10600	2126	39100	10362	600	0	16900	3462	5500	0	800	176	5000	1043	3250	626	2100	0	17795
9800	1965	47200	12509	600	0	16400	3360	5300	0			4000	835	2700	520	2400	0	19188
4400	882	63900	16935		0	15000	3073	4600	0			2000	417	3200	617	1500	0	21924
6000	1203	65700	17412	700	0	12900	2643	3900	0			1000	209	3450	665	2700	0	22131
6000	1203	68000	18021	900	0	13400	2745	4300	0			1900	396	3250	626	3000	0	22992
6000	1203	69000	18286	600	0	13700	2807	4000	0			1500	313	3300	636	3000	0	23245
2700	593	66000	21014	700	0	13400	3181	3400	0			1100	275	2380	493	2000	0	25556
3000	602	66000	17491		0	12400	2540	4100	0			1000	209	2020	389	2000	0	21231
2500	501	62700	16617	1200	0	14000	2868	10000	0				0	2000	385		0	20371
2700	541	64000	16961			13100	2684	8000	0				0	2130	410	1500	0	20597
3000	602	61500	16299			13700	2807	7500	0				0	2050	395	2200	0	20102
2700	541	60000	15901			16500	3380	7000	0			1600	334	1810	349	1300	0	20505
2500	501	57100	15132			20200	4138						0	1290	249	1100	0	20020
2600	571	62600	19932			14300	3394						0	960	199	1000	0	24096
6800	1493	53500	17034			14000	3323					2900	726	1010	209	3200	0	22785

Cook, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cotton Irrig	Oats Planted	Oats IRrig	Peanuts Planted	Peanuts Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorghum Irrig	Soybeans Planted	Soybeans	Tobacco Harvested	Tobacco Irrig	Wheat (All) Planted	Wheat Irrig	Total AG Irrig
1980	19000	3810	545	144	380	0		0	1100	0	1000	220	25000	5216	2510	484	300	0	9874
1981	21000	4609	765	244	330	0		0	1600	0	1100	270	15500	3881	2450	507	2900	0	9511
1982	13500	2707	2230	591	300	0		0	1600	0	440	97	20500	4277	2060	397	4900	0	8069
1983	11500	2306	1250	331		0		0	1200	0	270	59	17000	3547	1940	374	4400	0	6617
1984	16500	3309	2260	599	180	0		0	1400	0	220	48	15000	3130	1770	341	4100	0	7426
1985	14000	2807	8050	2133		0		0	840	0	270	59	10500	2191	1600	308	2700	0	7499
1986	14000	2807	4160	1102		0		0	1600	0	200	44	9000	1878	1420	274	1300	0	6105
1987	10500	2105	7400	1961		0		0	1600	0		0	5100	1064	1290	249	930	0	5379
1988	10000	2005	10800	2862		0		0	1700	0		0	5400	1127	1800	347	1000	0	6340
1989	8300	1664	7100	1882	200	0		0	2200	0		0	8700	1815	1840	355	2500	0	5715
1990	8000	1756	7000	2229	350	0		0	2400	0		0	5700	1427	2000	414	2400	0	5825
1991	9000	1805	10000	2650	300	0	13300	2725	3000	0		0	1900	396	1780	343	2200	0	7918
1992	9400	1885	9600	2544	300	0	9200	1885	3900	0	200	44	2800	584	1890	364	1700	0	7306
1993	7500	1504	11500	3048			10100	2069	2500	0			2400	501	1950	376	1100	0	7497
1994	6500	1303	15500	4108			7790	1596	3600	0			2300	480	1680	324	1000	0	7810
1995	4300	862	20200	5353			6750	1383	3900	0			800	167	1910	368	600	0	8133
1996	5000	1003	20700	5486			5900	1209	3400	0			500	104	1880	362	700	0	8163
1997	3500	702	21000	5565			6500	1332	3700	0			1300	271	1930	372	700	0	8241
1998	3000	602	20500	5433			7200	1475	2400	0			1000	209	1700	328	500	0	8045
1999	1900	417	22500	7164			7400	1757	2500	0			600	150	1500	311		0	9798
2000	2100	421	23000	6095			6500	1332	5900	0				0	1390	268	1000	0	8115
2001	1600	321	21300	5645			7500	1536	4900	0				0	1200	231		0	7733
2002	1900	381	19500	5168			9200	1885	4000	0				0	1280	247	2500	0	7680
2003	1800	361	19400	5141			9400	1926	3600	0				0	1260	243	2400	0	7670
2004	1800	361	17000	4505			11500	2356					800	167	1050	202	2300	0	7591
2005	1600	321	15200	4028			12800	2622						0	850	164	1300	0	7135
2006	1400	307	18400	5859			8700	2065						0	900	186	1700	0	8417
2007	3400	746	18200	5795			6300	1495						0			1000	0	8036

Crisp, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cotton Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Peanuts IRrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorghum Irrig	Soybeans Planted	Soybeans Irrig	Wheat (All) Planted	Wheat Irrig	Total AG
1980	13200	2647	7400	1961	1800	0		0	11100	0	1800	396	32500	6781	8300	0	11785
1981	14500	3183	6900	2197	2200	0		0	10000	0	3000	737	31500	7887	14500	0	14004
1982	6900	1384	4670	1238	2000	0		0	10500	0	2100	462	33500	6990	24000	0	10073
1983	4400	882	4100	1087	2600	0		0	11500	0	710	156	24500	5112	15000	0	7237
1984	7100	1424	4900	1299	1100	0		0	7600	0	1100	242	21000	4382	17500	0	7346
1985	8600	1725	8300	2200	810	0		0	4600	0	1200	264	19500	4069	13000	0	8257
1986	8200	1644	7650	2027	600	0		0	5600	0	1700	374	14000	2921	12000	0	6967
1987	6000	1203	5000	1325	900	0		0	5500	0	1500	330	17500	3651	12000	0	6510
1988	4700	942	9000	2385	1200	0		0	4800	0	1400	308	16500	3443	13500	0	7078
1989	5200	1043	5600	1484	2300	0		0	5000	0	1600	352	20000	4173	19500	0	7052
1990	5200	1141	6900	2197	1500	0		0	9000	0	2000	492	15000	3756	16800	0	7586
1991	4700	942	7250	1921	2800	0	30000	6146	8200	0	1600	352	6800	1419	10400	0	10781
1992	6600	1323	10400	2756	1700	0	24500	5019	6600	0	1800	396	8800	1836	9100	0	11331
1993	4600	922	15000	3975	1300	0	24600	5040	4000	0	1500	330	8500	1774	9000	0	12041
1994	3900	782	23400	6201	1200	0	22080	4523	4000	0	1150	253	6500	1356	8700	0	13116
1995	2700	541	36000	9541	500	0	19060	3905	3800	0	850	187	2500	522	6000	0	14695
1996	3000	602	33700	8931		0	16900	3462	3200	0	700	154	4000	835	6000	0	13983
1997	1700	341	39000	10336	400	0	15600	3196	3200	0	800	176	2500	522	5500	0	14570
1998	2300	461	38500	10203		0	13800	2827	2500	0	600	132	2000	417	2000	0	14041
1999	1600	351	36000	11462		0	15500	3679	2500	0	1000	246	1700	426	2500	0	16164
2000	1500	301	36000	9541	600	0	13300	2725	2500	0	1200	264	1300	271	2500	0	13101
2001	700	140	36600	9700	1400	0	14500	2970	2200	0	1400	308		0	4000	0	13118
2002	1300	261	38000	10071			13500	2766	2000	0				0	3000	0	13097
2003	1000	201	36000	9541			11600	2376	2000	0			900	188	4500	0	12305
2004	1200	241	36800	9753			12400	2540	1700	0			2600	542	2300	0	13076
2005	1100	221	34000	9011			13800	2827	3000	0			1600	334	5300	0	12392
2006	1900	417	39100	12449			8600	2041	2600	0			1000	250	1300	0	15158
2007	3100	680	30200	9616			11900	2825	2500	0			3900	976	4000	0	14097

Echols, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Plante d	Cotton Irrig	Peanuts Harvest ed	Pean uts Irrig	Rye Planted	Rye Irrig	Sorghu m Plante d	Sorghu m Irrig	Soybeans Planted	Soybeans IRrig	Tobacc o Harvest ed	Tobacco Irrig	Wheat (All) Plante d	Whe at Irrig	Total AG
1980	3070	616		0		0	1500	0		0	2500	522	225	43		0	1181
1981	2200	483	310	99		0	1600	0		0	2100	526	185	38		0	1146
1982	700	140	890	236	60	12	1400	0		0	2800	584	150	29	300	0	1002
1983	600	120	645	171		0		0		0	3400	709	180	35	310	0	1035
1984	700	140	600	159		0		0		0	4000	835	150	29	240	0	1163
1985	1000	201	525	139		0		0		0	2800	584	155	30	400	0	954
1986	1100	221	430	114	50	10		0		0	1000	209	105	20		0	574
1987	800	160	600	159	105	22		0		0	300	63	125	24	220	0	428
1988	880	176	360	95		0		0		0	500	104	165	32	300	0	408
1989	700	140	200	53	60	12		0		0	1000	209	160	31	100	0	445
1990	500	110	210	67			650	0		0	500	125	180	37			339
1991	700	140	250	66			600	0		0			170	33			239
1992	1000	201	250	66			400	0	200	44			170	33			344
1993	700	140		0			800	0					210	40			181
1994	800	160	550	146			600	0					180	35			341
1995	700	140	1050	278				0					210	40			459
1996		0	1180	313				0					220	42			355
1997		0	600	159			600	0					210	40			199
1998	600	120						0					180	35			155
1999	500	110					500	0									110
2000	700	140															140
2001		0															0
2002	700	140															140
2003		0															0
2004	500	100															100
2005		0															0
2006		0															0
2007	900	198															198

Irwin, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cotton Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Peanuts Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorghum Irrig	Soybeans Planted	Soybeans Irrig	Tobacco Harvested	Tobacco Irrig	Wheat (All) Planted	Wheat Irrig	Total AG
1980	43400	8703	930	246		0		0	7300	0	1000	220	16000	3338	1830	353	1200	0	12860
1981	54000	11853	1270	404	630	0		0	8400	0	2100	516	15500	3881	1830	379	6800	0	17033
1982	32000	6417	940	249	510	0		0	7100	0	900	198	24500	5112	1710	329	12500	0	12305
1983	28000	5615	560	148	330	0		0	6700	0		0	19500	4069	1460	281	8600	0	10113
1984	43000	8623	1120	297		0		0	12500	0	180	40	19000	3964	1160	223	9000	0	13147
1985	41000	8221	1570	416		0		0	13500	0	600	132	16000	3338	1240	239	6800	0	12347
1986	29000	5815	2520	668		0		0	14000	0	800	176	18000	3756	1060	204	4000	0	10619
1987	21000	4211	3600	954		0		0	9000	0	650	143	8700	1815	1060	204	4000	0	7328
1988	17000	3409	4800	1272	200	0		0	8500	0	380	84	7000	1461	1210	233	2500	0	6458
1989	20000	4010	2900	769	300	0		0	6000	0	450	99	11000	2295	1300	250	8500	0	7424
1990	22000	4829	2650	844	450	0		0	5800	0	1000	246	6300	1577	1400	290	7700	0	7786
1991	21100	4231	4100	1087	600	0	32700	6699	5500	0	1000	220	2800	584	1300	250	5200	0	13071
1992	27500	5514	5550	1471	600	0	24500	5019	4600	0	1000	220	4300	897	1450	279	4600	0	13401
1993	22600	4532	11200	2968	600	0	24600	5040	4000	0	800	176	4200	876	1430	276	5500	0	13867
1994	20400	4091	19300	5115	500	0	22740	4659	4100	0			3700	772	1230	237	6000	0	14873
1995	13500	2707	35000	9276		0	20550	4210	3800	0			1800	376	1410	272	3500	0	16840
1996	19000	3810	29700	7871		0	18900	3872	4400	0			1700	355	1520	293	3500	0	16200
1997	16000	3208	35100	9302		0	17900	3667	4000	0			1900	396	1410	272	4000	0	16846
1998	18500	3710	29000	7685		0	18900	3872	3300	0			1000	209	1300	250	3000	0	15726
1999	12100	2656	35000	11144	500	0	19200	4558	2700	0			1400	351	1080	224	2500	0	18932
2000	13000	2607	34000	9011	500	0	18000	3687	2500	0			1000	209	970	187	2000	0	15700
2001	10600	2126	33700	8931	1100	0	17300	3544	5000	0				0	870	168	1800	0	14768
2002	11000	2206	34000	9011			18300	3749	3800	0				0	870	168	4200	0	15133
2003	12000	2406	29000	7685			19400	3974	4300	0			2200	459	970	187	5500	0	14712
2004	13000	2607	29000	7685			21500	4404	3500	0			1300	271	720	139	3300	0	15107
2005	8000	1604	27100	7182			28100	5757	3400	0			800	167			1700	0	14710
2006	11000	2414	29900	9520			22700	5388	3000	0				0			1800	0	17323
2007	20000	4390	21400	6814			19200	4558					3200	801			7000	0	16562

Lanier, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cotton Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Peanuts Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorgh Irrig	Soybeans Planted	Soyb Irrig	Tobacco Harvested	Tobacc Irrig	Wheat (All) Planted	Wheat Irrig	Total AG
1980	7830	1570	115	30		0		0	2300	0	540	119	5000	1043	1070	206	500	0	2969
1981	9600	2107	475	151	400	0		0	1300	0	650	160	5200	1302	1090	226	440	0	3946
1982	5500	1103	90	24	300	0		0	1100	0	560	123	7300	1523	950	183	900	0	2956
1983	3900	782		0	290	0		0	1100	0	370	81	5200	1085	800	154	680	0	2103
1984	3900	782	265	70		0		0	1400	0	440	97	5300	1106	700	135	770	0	2190
1985	3400	682	415	110		0		0	1300	0		0	4100	855	710	137	690	0	1784
1986	3500	702	290	77		0		0	2500	0	450	99	4100	855	600	116	370	0	1849
1987	2900	582	600	159		0		0	2200	0	430	95	4100	855	655	126		0	1817
1988	1900	381	830	220		0		0	2700	0			4100	855	750	144		0	1601
1989	3000	602	600	159		0		0	2000	0			7300	1523	750	144	200	0	2428
1990	3200	702	600	191		0		0	1400	0			5000	1252	800	166	600	0	2311
1991	3500	702	1300	345		0	1780	365	1300	0			3800	793	750	144	100	0	2348
1992	4000	802	1400	371		0	700	143	700	0			3200	668	820	158			2142
1993	3300	662	2500	663		0	600	123	500	0			3000	626	820	158			2231
1994	3200	642	4300	1140		0		0	800	0			2000	417	710	137			2335
1995	2200	441	7900	2094		0		0		0				0	810	156			2691
1996	3300	662	7150	1895		0		0		0			700	146	780	150			2853
1997	2600	521	7500	1988	300	0		0	500	0			600	125	820	158			2792
1998	2000	401	7500	1988				0		0					800	154			2543
1999	1800	395	7800	2484				0		0					650	135			3013
2000	2000	401	8000	2120				0		0					570	110			2631
2001	1300	261	7500	1988				0		0						0			2248
2002	1800	361		0				0	800	0					510	98			459
2003	1700	341	6800	1802			1700	348							500	96			2588
2004	1400	281	6500	1723			2900	594											2597
2005	700	140	5700	1511			3900	799											2450
2006	1000	219	6800	2165			2600	617											3002
2007	2300	505	5900	1879			2500	593											2977

Lowndes, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	**Corn Irrig**	**Cotton Planted**	**Cotton Irrig**	**Oats Planted**	**Oats Irrig**	**Peanuts Planted**	**Pean Irrig**	**Rye Planted**	**Rye Irrig**	**Sorghum Planted**	**Sorgh Irrig**	**Soybeans Planted**	**Soyb Irrig**	**Tobacco Harvested**	**Tobacc Irrig**	**Wheat (All) Planted**	Wheat Irrig	Total AG
1980	25400	5093	510	135		0		0	6500	0	360	79	21000	4382	3080	593	2300	0	10283
1981	24000	5268	3350	1067	1700	0		0	4700	0	690	170	22000	5508	3200	662	3500	0	12675
1982	9000	1805	4490	1190	1500	0		0	4600	0	390	86	22500	4695	2740	528	4800	0	8303
1983	8700	1745	3610	957	3700	0		0	3400	0	440	97	21500	4486	2430	468	5700	0	7752
1984	11000	2206	5350	1418	1900	0		0	4900	0	580	128	24500	5112	2110	407	5900	0	9270
1985	9400	1885	6550	1736	2100	0		0	5600	0	950	209	20500	4277	1990	383	6700	0	8491
1986	9000	1805	4950	1312	1000	0		0	6600	0	1300	286	18000	3756	1590	306	3000	0	7465
1987	8000	1604	5000	1325	1100	0		0	6000	0	680	150	10500	2191	1800	347	1500	0	5617
1988	6300	1263	5400	1431	1500	0		0	6200	0		0	16000	3338	2170	418	1000	0	6451
1989	7000	1404	3900	1034	1200	0		0	2500	0		0	20000	4173	2300	443	1800	0	7053
1990	8000	1756	4750	1512	1200	0		0	1900	0		0	16000	4006	2400	497	1500	0	7771
1991	6500	1303	4900	1299	1200	0	3370	690	3500	0		0	7000	1461	2250	433	1000	0	5186
1992	8500	1704	5650	1497	1200	0	1200	246	2300	0	400	88	5500	1148	2490	480	600	0	5163
1993	7800	1564	6700	1776	800	0	1600	328	1500	0		0	5000	1043	2490	480	500	0	5190
1994	6800	1364	7650	2027	1100	0	1620	332	2500	0		0	4500	939	2150	414	500	0	5076
1995	5100	1023	11300	2995	1500	0	1400	287	1500	0	600	132	2800	584	2430	468		0	5489
1996	6900	1384	11200	2968	600	0	1000	205	2400	0			1700	355	2420	466	700	0	5378
1997	7000	1404	10850	2875	500	0	1100	225	2000	0			3100	647	2440	470	700	0	5621
1998	5500	1103	9000	2385	500	0	1300	266	1900	0			2200	459	2300	443	700	0	4657
1999	3000	658	10000	3184	500	0	1700	404	2000	0			2400	601	1910	395		0	5242
2000	3300	662		0		0	1400	287		0			1700	355	1660	320		0	1623
2001	2000	401	10100	2677	550	0	1700	348	900	0			1800	376	1450	279		0	4081
2002	3000	602	10000	2650			2000	410	1200	0				0	1480	285		0	3947
2003	3000	602	9500	2518			2500	512		0			1600	334	1330	256	2100	0	4221
2004	2000	401	9000	2385			4200	860	1200	0			2600	542	1100	212		0	4401
2005	2700	541	8300	2200			5000	1024	1500	0			800	167	510	98		0	4031
2006	2500	549	9600	3057			3800	902	1000	0			1200	300			600	0	4808
2007	4400	966	8400	2675			3000	712					1200	300				0	4653

Pierce, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cotton Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Pean Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorgh Irrig	Soybeans Planted	Soyb Irrig	Tobacco Harvested	Tobacc Irrig	Wheat (All) Planted	TOT AG
1980	27000	5414		0	500			0	1800		490	108	13500	2817	2980	574	700	8913
1981	26000	5707		0	1200			0	2200		840	206	16000	4006	2400	497	1700	10416
1982	15000	3008		0	1200			0	1800		740	163	19000	3964	2200	424	3700	7559
1983	12000	2406		0	1300			0	1700			0	22000	4590	2110	407	1100	7403
1984	17500	3509		0	960			0	1400		1200	264	24000	5008	1630	314	1200	9095
1985	19500	3910	245	65	920			0	1500		680	150	19000	3964	1580	304	1200	8394
1986	17500	3509	140	37	500			0			1100	242	16000	3338	1350	260	690	7387
1987	11000	2206	210	56	500			0			950	209	9300	1940	1500	289	420	4700
1988	11000	2206	730	193	700			0			560	123	11500	2400	1760	339	450	5261
1989	10500	2105	830	220	1000			0	1500		700	154	14000	2921	1800	347	3500	5747
1990	11000	2414	2250	716	600			0	2100		300	74	11200	2804	2000	414	1800	6423
1991	11200	2246	3100	822	1500		170	35	1900		300	66	9600	2003	1900	366	800	5537
1992	13100	2627	2900	769	650			0	1700		500	110	8100	1690	2090	403	900	5598
1993	11400	2286	3700	981	750			0	1700				7500	1565	1950	376	800	5207
1994	10800	2166	9500	2518	1100			0	1300				6500	1356	1710	329	500	6369
1995	8500	1704	18000	4770				0	2200				2200	459	1900	366		7300
1996	13000	2607	13800	3657				0	1300				2400	501	2220	428		7193
1997	11000	2206	14300	3790	350			0	1800				2500	522	2040	393		6910
1998	11000	2206	13000	3445				0	1500				2500	522	2000	385		6558
1999	6300	1383	18000	5731				0	1500				1400	351	1560	323		7787
2000	7000	1404	19000	5035				0	3600				1400	292	1670	322	600	7053
2001	4500	902	19500	5168				0	3600				2000	417	1260	243		6730
2002	6000	1203	18000	4770				0	3000				2500	522	1240	239		6734
2003	9000	1805	14900	3949				0					1900	396	1230	237	1400	6387
2004	7000	1404	12500	3313			3300	676					4000	835	1090	210	2300	6437
2005	5000	1003	8400	2226			11200	2294					1900	396	850	164	1100	6083
2006	6000	1317	9100	2897			8800	2089					3500	876			1500	7180
2007	6200	1361	6600	2101			9600	2279					4000	1002			4500	6743

Thomas, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted		Cotton Planted		Oats Planted	Peanuts Planted	Pean Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorgh Irrig	Soybeans Planted	Soyb Irrig	Tobacco Harvested	Tobacc Irrig	Wheat (All) Planted	TOT AG
1980	41300	8282	1280	339	6200		0	2800		1400	308	38500	8033	1120	216	3000	17178
1981	42000	9219	3420	1089	5700		0	3100		1800	442	45000	11267	1120	232	7000	22249
1982	33500	6718	3650	967	5600		0	3200		1700	374	43500	9076	980	189	9000	17324
1983	31500	6316	3830	1015	4000		0	2600		740	163	38500	8033	840	162	8900	15689
1984	40000	8021	7800	2067	4100		0	1600		1800	396	37500	7824	730	141	7300	18449
1985	40500	8121	8500	2253	3100		0	1700		1000	220	31000	6468	810	156	9500	17218
1986	34000	6818	6100	1617	1400		0	2000		2000	440	22000	4590	660	127	7200	13592
1987	26000	5214	8900	2359	1100		0	1700		700	154	17000	3547	670	129	4500	11402
1988	23000	4612	10700	2836	1600		0	1000		1600	352	17000	3547	760	146	5000	11493
1989	24000	4813	8300	2200	1800		0	1500		1300	286	24000	5008	800	154	9000	12460
1990	30000	6585	9800	3120	1300		0	1600		1200	295	19000	4757	970	201	6300	14958
1991	23000	4612	14100	3737	2400	8200	1680	3000		1800	396	17000	3547	800	154	6400	14126
1992	22000	4412	15700	4161	1500	5400	1106	2000		1500	330	14000	2921	1000	193	3300	13122
1993	19500	3910	20800	5512	1500	6000	1229	3500		800	176	9700	2024	930	179	2800	13031
1994	17400	3489	28000	7420	1500	5850	1198	4200		500	110	6300	1315	690	133	3000	13665
1995	15000	3008	37600	9965	1700	4860	996	3500		1300	286	3000	626	850	164	2000	15044
1996	16000	3208	38200	10124	1600	4700	963	2100		1000	220	2100	438	940	181	2500	15134
1997	15000	3008	36000	9541	1200	4250	871	2500		1500	330	3500	730	870	168	1700	14647
1998	12800	2567	36000	9541	1400	4500	922	600		1600	352	2000	417	820	158	1500	13957
1999	9500	2085	36000	11462	1300	5200	1234	600		1600	393	1300	325	630	130	1500	15631
2000	10000	2005	36500	9673	900	4550	932			1500	330	1100	230	600	116	2000	13286
2001	6300	1263	37000	9806	1500	4500	922	1600		2000	440	800	167	520	100		12698
2002	8000	1604	35500	9408		4500	922	1300				1100	230	520	100		12264
2003	8000	1604	35000	9276		7500	1536					1100	230	530	102	1500	12748
2004	8300	1664	31200	8269		9400	1926					1300	271	510	98	1600	12228
2005	6500	1303	28800	7632		12400	2540					700	146			1000	11622
2006	7800	1712	32600	10380		7800	1852	2000					0			1400	13943
2007	12000	2634	28300	9011		5800	1377	3000				1900	476			2100	13497

Tift, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	**Corn Irrig**	**Cotton Planted**	**Cotton Irrig**	**Oats Planted**	**Oats Irrig**	**Peanuts Planted**	**Pean Irrig**	**Rye Planted**	**Rye Irrig**	**Sorghum Planted**	**Sorgh Irrig**	**Soybeans Planted**	**Soyb Irrig**	**Tobacco Harvested**	**Toba cc Irrig**	**Wheat (All) Planted**	Wheat Irrig	Total AG
1980	23800	4772	1910	506		0		0	13900	0	1200	264	11500	2400	2260	435	3100	0	8378
1981	22000	4829	2660	847	730	0		0	7800	0	1700	418	10500	2629	2200	455	4800	0	9178
1982	13500	2707	2100	557	620	0		0	7900	0	1200	264	14000	2921	2000	385	6400	0	6834
1983	11000	2206	1185	314	640	0		0	5700	0	760	167	10000	2087	1680	324	3400	0	5097
1984	12500	2507	2110	559	270	0		0	6500	0	1100	242	8800	1836	1560	301	3800	0	5444
1985	12500	2507	5150	1365	240	0		0	7500	0	1700	374	7200	1502	1550	299	4500	0	6046
1986	9900	1985	3750	994		0		0	6400	0	750	165	4400	918	1210	233	3200	0	4295
1987	6300	1263	9550	2531	330	0		0	4800	0	400	88	3900	814	1270	245	4000	0	4941
1988	5900	1183	7500	1988	200	0		0	5100	0	260	57	5700	1189	1480	285	5000	0	4702
1989	5500	1103	5550	1471		0		0	10000	0	300	66	6500	1356	1580	304	7000	0	4300
1990	6100	1339	6200	1974		0		0	6600	0	500	123	3200	801	1700	352	7200	0	4589
1991	7600	1524	6400	1696	300	0	27700	5675	9000	0	500	110	1800	376	1520	293	2800	0	9673
1992	10500	2105	6300	1670	400	0	22300	4568	6800	0	900	198	2700	563	1620	312	2000	0	9417
1993	8600	1725	8750	2319		0	23300	4773	5000	0	900	198	1700	355	1640	316	2100	0	9685
1994	7800	1564	14100	3737	600	0	20600	4220	5800	0	650	143	1700	355	1430	276	1500	0	10294
1995	4500	902	22100	5857	700	0	18700	3831	6000	0			800	167	1640	316	1000	0	11073
1996	5500	1103	22200	5883	600	0	17500	3585	5000	0			750	156	1680	324	800	0	11051
1997	4800	963	23500	6228	500	0	17000	3483	5000	0			1300	271	1650	318	1000	0	11262
1998	4500	902	20500	5433		0	17500	3585	5000	0			1400	292	1500	289	500	0	10501
1999	2000	439	23000	7323		0	17000	4035	4500	0			1200	300	1240	257	700	0	12355
2000	2000	401	23000	6095		0	15000	3073	3500	0			900	188	1160	223	1600	0	9981
2001	1800	361	20800	5512	550	0	15400	3155	3500	0			600	125	1030	198	700	0	9352
2002	1500	301	22000	5830			15600	3196	3500	0			500	104	1060	204	1500	0	9636
2003	2000	401	22000	5830			13900	2848	3600	0				0	1050	202	4000	0	9281
2004	2200	441	21500	5698			15400	3155	4000	0			500	104	890	171	1400	0	9570
2005	1300	261	20000	5300			16800	3442	4000	0					670	129	1000	0	9132
2006	1300	285	24100	7673			12800	3038	4500	0					720	149	1300	0	11146
2007	4200	922	20400	6495			11800	2801	4500	0					840	174	1200	0	10392

Turner, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	**Corn Irrig**	**Cotton Planted**	**Cotton Irrig**	**Oats Planted**	**Oats Irrig**	**Peanuts Planted**	**Pean Irrig**	**Rye Planted**	**Rye Irrig**	**Sorghum Planted**	**Sorgh Irrig**	**Soybeans Planted**	**Soyb Irrig**	**Tobacco Harvested**	**Tobacc Irrig**	**Wheat (All) Planted**	Wheat Irrig	Total AG
1980	16900	3389	3110	824		0		0	14300	0	2000	440	11500	2400	150	29	2500	0	7082
1981	14000	3073	3560	1134	570	0		0	14000	0	3300	811	12000	3005	120	25	7800	0	8047
1982	7800	1564	2880	763	610	0		0	12500	0	2800	616	15500	3234	125	24	11500	0	6202
1983	6000	1203	2120	562	1300	0		0	14000	0	900	198	13500	2817	110	21	7800	0	4801
1984	7900	1584	4200	1113	1500	0		0	16500	0	1400	308	13000	2712	115	22	10000	0	5740
1985	7900	1584	4920	1304	1200	0		0	18500	0	1900	418	11000	2295	95	18	10000	0	5620
1986	6300	1263	5050	1338	500	0		0	15000	0	1700	374	5600	1168	75	14	5800	0	4159
1987	5700	1143	5200	1378	540	0		0	14000	0	1900	418	3600	751	80	15	4700	0	3706
1988	5200	1043	6500	1723	800	0		0	9000	0	1400	308	4300	897	90	17	5000	0	3988
1989	5700	1143	4920	1304	600	0		0	7000	0	1600	352	6900	1440	105	20	7100	0	4259
1990	5700	1251	6600	2101	650	0		0	7400	0	2500	614	2700	676	110	23	6000	0	4666
1991	5700	1143	7650	2027	1000	0	27400	5613	6500	0	1600	352	1000	209	100	19	4000	0	9363
1992	6900	1384	7800	2067	1000	0	25000	5121	8400	0	1500	330	1500	313	110	21	2800	0	9236
1993	5000	1003	11700	3101	800	0	24700	5060	8200	0	1400	308	1200	250	110	21	2700	0	9743
1994	4300	862	16800	4452	1400	0	23070	4726	10000	0	850	187	1000	209	100	19	2500	0	10456
1995	1500	301	25600	6784	1500	0	21960	4499	5800	0	850	187		0	100	19	1300	0	11790
1996	2400	481	27400	7261	700	0	19400	3974	6300	0	900	198	500	104	100	19	1300	0	12039
1997	1700	341	29900	7924	300	0	16800	3442	6000	0	800	176	900	188	110	21	2000	0	12092
1998	3500	702	28000	7420		0	14500	2970	6000	0	600	132			90	17	900	0	11242
1999	1600	351	28000	8915		0	15800	3751	6000	0	600	147						0	13164
2000	1800	361	28500	7553		0	13300	2725	7000	0	900	198					1400	0	10837
2001	1100	221	26300	6970	950	0	13400	2745	7100	0	1100	242					4800	0	10178
2002	2000	401	26300	6970			13500	2766	5700	0							4500	0	10137
2003	3000	602	25400	6731			11000	2253	6400	0							3500	0	9586
2004	2500	501	25500	6758			13300	2725	6600	0			1100				6500	0	9984
2005	2800	561	21900	5804			16600	3401	13500	0			700				6700	0	9766
2006	2300	505	25000	7960			12500	2967	13000	0							6000	0	11432
2007	5600	1229	20600	6559			11300	2682	10000	0			2000				8500	0	10471

Ware, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cott Irrig	Oats Planted	Oats	Peanuts Planted	Pean Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorgh Irrig	Soybeans Planted	Soyb Irrig	Tobacco Harvested	Tobac Irrig	Wheat (All) Planted	TOT AG
1980	12700	2547		0				0	800			0	5000	1043	1240	239	300	3829
1981	14000	3073		0	910			0	1000		390	96	7100	1778	1260	261	300	5207
1982	7800	1564		0	1200			0			500	110	9200	1920	1060	204	420	3798
1983	5200	1043		0	1100			0	910		670	147	7300	1523	970	187	360	2900
1984	12500	2507		0	900			0	990		970	213	9000	1878	845	163	400	4761
1985	13000	2607	520	138	830			0	1100		360	79	6600	1377	790	152	410	4353
1986	10000	2005	445	118	380			0			400	88	5000	1043	685	132	650	3386
1987	7200	1444	180	48	250			0				0	2500	522	760	146	530	2160
1988	7300	1464	780	207	300			0				0	2900	605	800	154	450	2430
1989	7200	1444	620	164	240		180	37	500			0	6900	1440	900	173	1100	3258
1990	7200	1580	320	102			300	71	600			0	5000	1252	940	195	1000	3200
1991	6100	1223	200	53	200		650	133				0	4600	960	920	177	800	2546
1992	6100	1223	200	53	150			0	550			0	3000	626	1070	206	600	2108
1993	5400	1083	550	146				0	500			0	3400	709	1000	193	600	2131
1994	5500	1103	600	159				0	800			0	4100	855	870	168	700	2285
1995	4200	842	3650	967				0				0	2000	417	960	185		2412
1996	5200	1043	4200	1113				0				0	800	167	980	189		2512
1997	6000	1203	3900	1034				0	600			0	2000	417	1000	193		2847
1998	5500	1103	3300	875				0				0	1500	313	1000	193		2483
1999	3200	702	4500	1433				0			600	147	1700	426	720	149	1100	2857
2000	2400	481	6600	1749				0				0	1300	271	710	137	600	2638
2001	2500	501	6100	1617				0				0	700	146	620	119		2383
2002	3800	762	4500	1193				0				0	600	125	630	121		2201
2003	4200	842	3200	848				0				0	1000	209	590	114		2013
2004	3200	642	3200	848			2900	594				0	1000	209	660	127		2420
2005	3100	622		0			5200	1065				0		0	640	123		1810
2006	3100	680	3900	1242			3200	760				0		0				2682
2007	4400	966		0				0				0	1500	376				1341

Wilcox, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	Corn Irrig	Cotton Planted	Cott Irrig	Oats Planted	Oats Irrig	Peanuts Planted	Pean Irrig	Rye Planted	Rye Irrig	Sorghum Planted	Sorgh Irrig	Soybeans Planted	Soyb Irrig	Tobacco Harvested	Tobacc Irrig	Wheat (All) Planted	TOT AG
1980	12700	2547	3320	880	2400		12485	2558	5900		1000	246	23000	5759	145	30	3100	12019
1981	14000	3073	4800	1528	1600		13670	3245	9500		3900	959	24500	6134	130	27	10500	14966
1982	7300	1464	3680	975			12220	2503	11000		2900	713	19500	4882	145	30	14500	10568
1983	6800	1364	2520	668	1400		14645	3000	10500		1200	295	21500	5383	130	27	8700	10737
1984	7200	1444	3180	843	350		16810	3444	9000		1700	418	22000	5508	90	19	6600	11675
1985	8800	1765	5350	1418	390		16300	3339	9000		1800	442	17000	4257	100	21	6100	11241
1986	6700	1344	6800	1802	480		17760	3638	10500		2400	590	9300	2329	65	13	5400	9716
1987	5600	1123	7600	2014	320		16700	3421	10000		2700	664	7200	1803	75	16	6000	9040
1988	5200	1043	7400	1961	350		17910	3669	8900		1300	320	7600	1903	120	25	4500	8920
1989	6500	1303	5600	1484	450		18100	3708	9000		1800	442	8900	2228	120	25	10000	9191
1990	7000	1536	6800	2165	600		19900	4724	7600		2000	492	7500	1878	130	27	9200	10822
1991	6900	1384	6600	1749	500		24000	4917	10000		1300	320	2300	576	120	25	6500	8970
1992	7400	1484	7800	2067	500		19600	4015	9000		1700	418	3200	801	140	29	5700	8814
1993	6200	1243	12200	3233	600		18800	3851	8700		1100	270	2500	626	130	27	5000	9251
1994	4900	983	16600	4399	500		17500	3585	8300		700	172	2000	501	110	23	4400	9662
1995	2000	401	26800	7102			16700	3421	5300			0	600	150	120	25	2100	11100
1996	3500	702	27000	7155			14500	2970	3800		700	172	1500	376	150	31	2000	11406
1997	3300	662	30200	8003	300		12700	2602	5300		700	172	1400	351	120	25	2000	11814
1998	2100	421	30000	7950			12100	2479	5000		600	147	800	200	120	25	900	11223
1999	1600	351	23500	7482			13300	3157	4800		800	197		0				11187
2000	1900	381	27500	7288			13100	2684	3200		1100	270		0			1500	10623
2001	1500	301	28300	7500			12100	2479	3400		800	197		0				10476
2002	2800	561	27000	7155			11500	2356	3000					0				10073
2003	2600	521	26000	6890			9300	1905	3200					0			4000	9317
2004	3400	682	25000	6625			10700	2192	3500				1800	451			4700	9950
2005	2400	481	24500	6493			12000	2458	3200					0			1800	9432
2006	1300	285	29000	9234			7900	1875	2400					0			1000	11394
2007	4800	1054	19500	6209			10900	2587	3000				700	175			3300	10025

Worth, GA - acres planted and estimated irrigation (Mgal/Yr)

	Corn Planted	**Corn Irrig**	**Cotton Planted**	**Cott Irrig**	**Oats Planted**	**Oats Irrig**	**Peanuts Planted**	**Pean Irrig**	**Rye Planted**	**Rye Irrig**	**Sorghum Planted**	**Sorghum Irrig**	**Soybeans Planted**	**Soyb Irrig**	**Tobacco Harvested**	**Tobacc Irrig**	**Wheat (All) Planted**	Wheat Irrig	Total AG
1980	39700	7961	940	249	1430	0		0	13000	0	2200	484	31000	6468	1200	231	3400	0	15393
1981	43000	9438	1550	494	2100	0		0	13000	0	6000	1475	30000	7512	1320	273	15000	0	19191
1982	17000	3409	1540	408	2100	0		0	13000	0	4600	1012	44000	9181	1140	220	27500	0	14230
1983	14000	2807	1000	265	2000	0		0	13500	0	1500	330	36500	7616	950	183	13500	0	11201
1984	17000	3409	2250	596	1900	0		0	12500	0	2300	506	33500	6990	875	169	11500	0	11670
1985	18500	3710	4350	1153	1600	0		0	13500	0	1600	352	30500	6364	785	151	11000	0	11730
1986	17500	3509	3250	861	990	0		0	11500	0	2600	572	20000	4173	790	152	8000	0	9268
1987	15000	3008	5200	1378	750	0		0	11000	0	1800	396	18000	3756	715	138	9000	0	8676
1988	12000	2406	9300	2465	1100	0		0	6500	0	1400	308	22000	4590	860	166	8500	0	9935
1989	13500	2707	5600	1484	1400	0		0	6500	0	1700	374	30000	6260	880	170	21500	0	10994
1990	15000	3292	8700	2770	1100	0		0	8500	0	2200	541	22500	5634	1000	207	16600	0	12444
1991	13000	2607	13800	3657	1300	0	47000	9628	6500	0	2400	528	8800	1836	850	164	11300	0	18420
1992	18300	3670	15400	4081	1400	0	40000	8194	7000	0	3600	792	10700	2233	1110	214	6700	0	19184
1993	13500	2707	22400	5936	1700	0	40700	8338	9300	0	3900	858	11000	2295	980	189	9400	0	20323
1994	10400	2085	36300	9620	1700	0	37810	7746	8700	0	2900	638	8000	1669	860	166	11000	0	21924
1995	4100	822	54000	14311	1400	0	35900	7354	8300	0	1300	286	2500	522	1000	193	6000	0	23488
1996	7800	1564	52800	13993	1100	0	32700	6699	7700	0	1600	352	2500	522	1170	225	7000	0	23355
1997	5100	1023	58500	15503	1200	0	30900	6330	6700	0	1500	330	3200	668	1010	195	5500	0	24049
1998	9200	1845	50000	13251	850	0	31500	6453	6700	0	800	176	2000	417	860	166	4000	0	22308
1999	3600	790	54000	17194	900	0	32600	7738	5800	0	800	197	2100	526	700	145	4000	0	26590
2000	5500	1103	52500	13913	1000	0	30200	6187	3600	0	900	198	1300	271	610	118	4000	0	21790
2001	3100	622	51000	13516			32100	6576	6000	0	1100	242		0	540	104	3400	0	21060
2002	4000	802	53000	14046			29500	6043	4600	0				0	580	112	5500	0	21003
2003	4400	882	50000	13251			27900	5716	5000	0			1300	271	520	100	8000	0	20220
2004	4400	882	51000	13516			27600	5654	10000	0			3300	689		0	15500	0	20741
2005	3400	682	50300	13330			32400	6637	16500	0			1200	250		0	12200	0	20900
2006	4300	944	56000	17830			25800	6124	13000	0				0		0	19000	0	24898
2007	7300	1602	50600	16111			26700	6338	11000	0			2400	601		0	21500	0	24652

Appendix 16: Groundwater Withdrawal Annual Data, Florida

Following is a summary of annual groundwater withdrawal data by county for these categories.

1. Agriculture from Crops: Calculated as (#Acres of crop Planted) * (Irrigation recommendation depending if it was a dry or normal year).
2. Domestic Self Supply
3. Public Supply
4. Commercial/Industrial/Institutional (includes power and mining)
5. Recreational (when available)
6. Total groundwater withdrawal (TGW): Sum of the available data in all categories, regardless of data series completeness.
7. Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data (no missing years) only. The categories with missing data points were not included.
8. Continuous groundwater withdrawal, no AG (CGWNA): All categories with no missing years, except AG, were included.

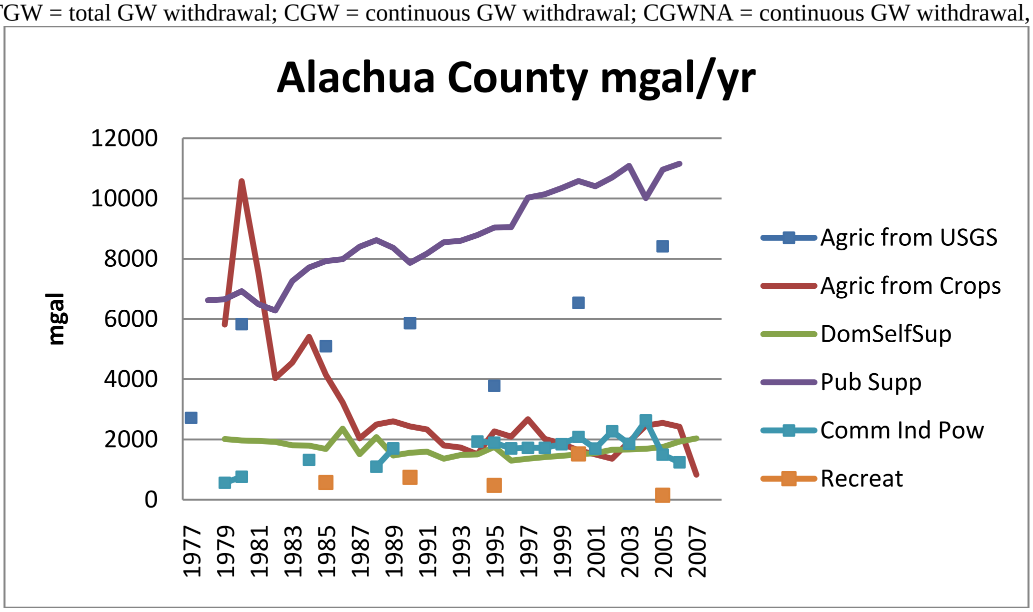
Only the first 5 categories are graphed along with Agricultural Water Use estimates reported by USGS (USGS, 2010).

Appendix 16.1 Florida Total Ground Water Withdrawal:

ALACHUA Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1979	5815	2010	6654	560		15039	14479	8664
1980	10576	1966	6924	761		20227	19466	8890
1981	7511	1951	6488			15950	15950	8439
1982	4035	1918	6279			12233	12233	8197
1983	4551	1807	7258			13616	13616	9065
1984	5406	1794	7708	1320		16227	14907	9501
1985	4148	1684	7920		569	14322	13752	9604
1986	3226	2355	7986			13567	13567	10341
1987	2036	1510	8400			11946	11946	9910
1988	2497	2076	8620	1094		14287	13193	10695
1989	2601	1464	8363	1698		14126	12428	9827
1990	2432	1557	7861		741	12592	11851	9418
1991	2329	1593	8171			12093	12093	9764
1992	1799	1359	8547			11706	11706	9906
1993	1731	1479	8595			11806	11806	10075
1994	1508	1505	8788	1929		13730	11801	10293
1995	2265	1752	9034	1892	475	15418	13051	10786
1996	2091	1293	9049	1701		14134	12433	10342
1997	2669	1358	10027	1720		15773	14054	11385
1998	2015	1412	10139	1720		15285	13566	11550
1999	1858	1456	10346	1840		15500	13660	11802
2000	1634	1503	10579	2085	1518	17320	13716	12082
2001	1500	1545	10406	1694		15146	13451	11951
2002	1357	1655	10699	2270		15982	13712	12354
2003	1920	1668	11087	1854		16529	14675	12755
2004	2457	1690	10011	2629		16787	14158	11701
2005	2551	1749	10961	1495	146	16902	15261	12710
2006	2420	1927	11154	1239		16741	15502	13081
2007	831	2034				2865	2865	2034

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

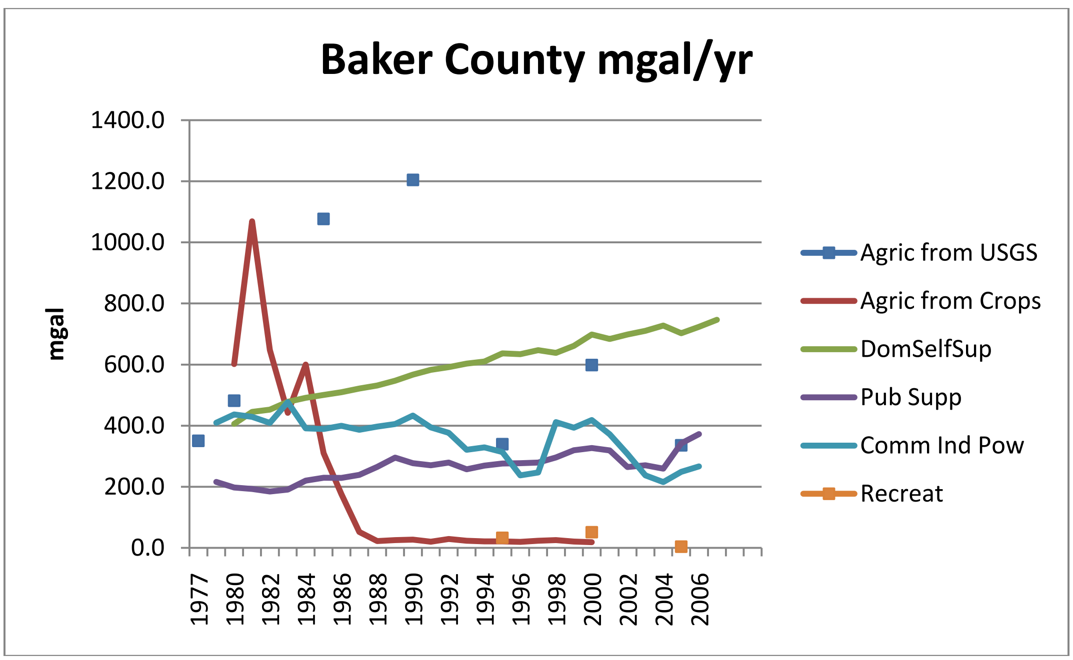


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Alachua County, FL.

BAKER Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	602	406	198	437		1641	1040	438
1981	1069	445	193	429		2136	1066	-3
1982	648	453	184	409		1694	1046	398
1983	442	478	191	477		1588	1146	704
1984	600	491	220	391		1702	1102	502
1985	310	500	230	389		1429	1119	809
1986	176	510	229	400		1315	1138	962
1987	52	522	239	386		1199	1146	1094
1988	22	531	265	397		1215	1193	1171
1989	25	547	296	405		1273	1248	1223
1990	27	567	277	433		1304	1277	1250
1991	20	583	270	395		1268	1247	1227
1992	29	592	279	376		1276	1247	1218
1993	23	603	257	321		1205	1182	1158
1994	21	610	269	329		1229	1208	1187
1995	21	636	276	313	33	1280	1226	1205
1996	19	634	277	237		1168	1148	1129
1997	23	647	279	246		1196	1173	1150
1998	25	638	296	411		1370	1345	1320
1999	21	661	319	393		1395	1374	1353
2000	19	698	327	418	51	1513	1443	1424
2001		684	319	372		1375	1375	1375
2002		698	265	307		1270	1270	1270
2003		710	270	237		1218	1218	1218
2004		728	259	216		1202	1202	1202
2005		702	342	249	4	1297	1293	1293
2006		724	372	266		1362	1362	1362
2007		747				747		

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

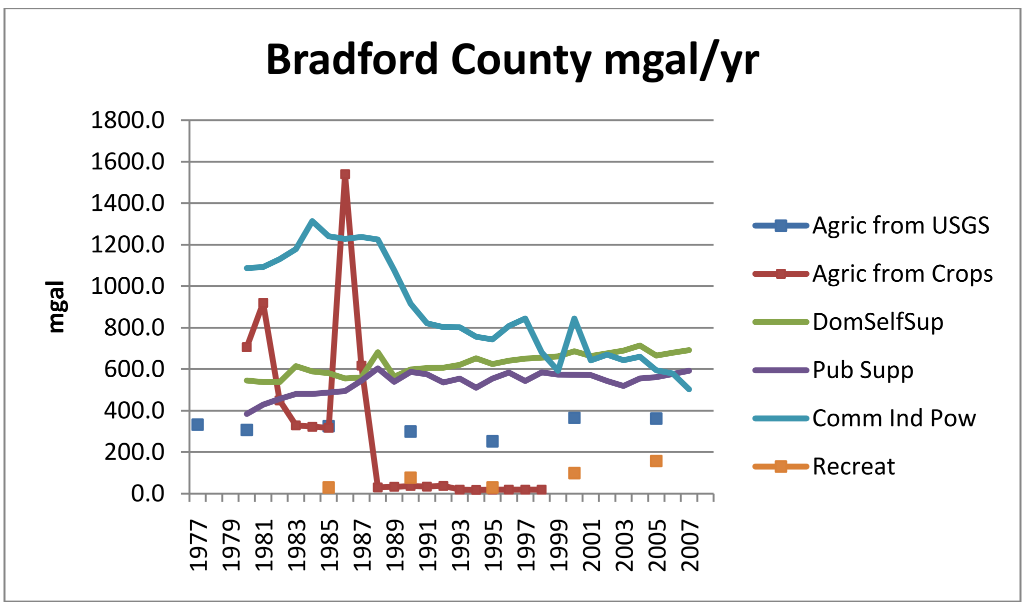


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Baker County, FL.

BRADFORD Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	706	545	384	1087		2722	2016	1311
1981	919	537	428	1092		2977	2058	1139
1982	449	538	456	1130		2572	2123	1674
1983	329	615	480	1179		2602	2273	1944
1984	322	589	480	1313		2704	2382	2060
1985	317	580	487	1240	29	2654	2307	1990
1986	1540	555	494	1228		3817	2278	738
1987	617	560	544	1237		2958	2341	1724
1988	30	681	604	1225		2540	2510	2480
1989	33	563	539	1077		2212	2179	2146
1990	36	598	586	915	77	2213	2099	2063
1991	34	605	575	821		2034	2000	1967
1992	37	607	536	803		1982	1945	1908
1993	19	620	554	801		1995	1976	1956
1994	17	652	510	756		1936	1919	1901
1995	19	624	555	743	29	1971	1922	1903
1996	19	641	584	808		2052	2033	2013
1997	19	650	543	844		2057	2037	2018
1998	19	655	584	681		1940	1920	1901
1999		661	574	592		1827	1827	1827
2000		686	573	844	99	2201	2103	2103
2001		663	571	642		1876	1876	1876
2002		676	542	670		1888	1888	1888
2003		689	519	643		1850	1850	1850
2004		714	555	660		1929	1929	1929
2005		665	561	594	157	1977	1820	1820
2006		679	577	579		1835	1835	1835
2007		691	592	503		1786	1786	1786

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

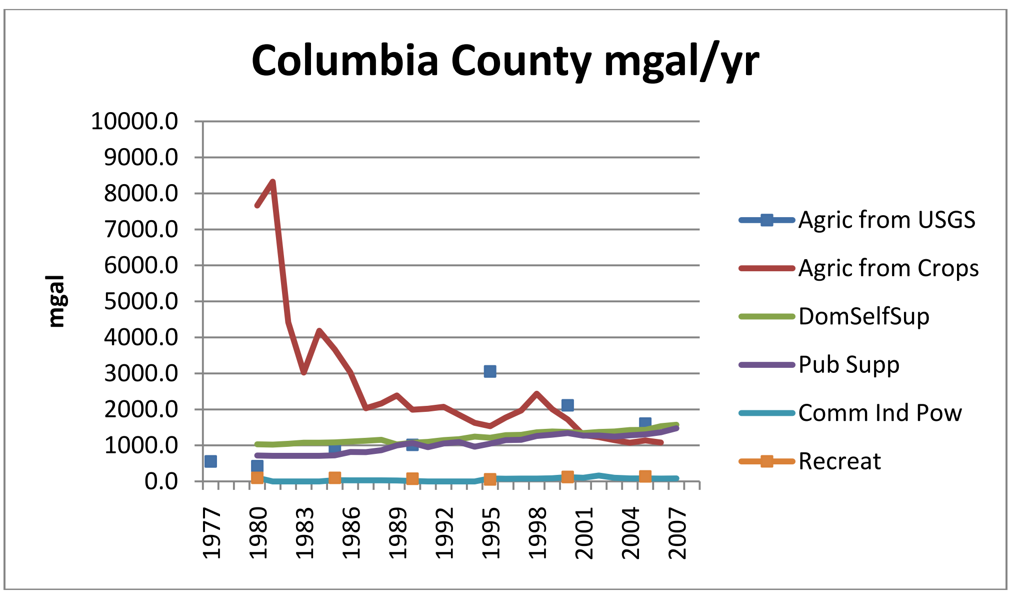


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Bradford County, FL.

COLUMBIA Groundwater withdrawal (M gall/Year) to correct

Year	Agric from Crops	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	7664	1029	721	99	99	9413	9413	1749
1981	8325	1022	708			10054	10054	1730
1982	4419	1042	708			6169	6169	1750
1983	3024	1074	708			4806	4806	1782
1984	4186	1075	708			5969	5969	1783
1985	3665	1085	724	33	99	5473	5473	1808
1986	3026	1105	816	30		4947	4947	1921
1987	2032	1128	812	30		3971	3971	1940
1988	2164	1154	864	30		4182	4182	2018
1989	2387	1027	997	26		4411	4411	2025
1990	1993	1075	1065	11	73	4133	4133	2140
1991	2017	1098	949			4064	4064	2048
1992	2069	1145	1053			4268	4268	2199
1993	1848	1171	1091			4110	4110	2262
1994	1627	1246	962			3834	3834	2208
1995	1531	1215	1046	83	55	3792	3792	2261
1996	1773	1286	1148	76		4207	4207	2434
1997	1969	1294	1153	76		4417	4417	2448
1998	2434	1366	1261	80		5061	5061	2627
1999	2003	1386	1297	89		4686	4686	2683
2000	1718	1373	1340	120	124	4432	4432	2713
2001	1287	1340	1272	103		3898	3898	2612
2002	1229	1374	1274	161		3877	3877	2648
2003	1145	1387	1246	101		3778	3778	2633
2004	1073	1428	1279	81		3780	3780	2707
2005	1136	1432	1306	81	139	3874	3874	2737
2006	1081	1532	1364	79		3976	3976	2895
2007		1572	1476	85		3048	3048	3048

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

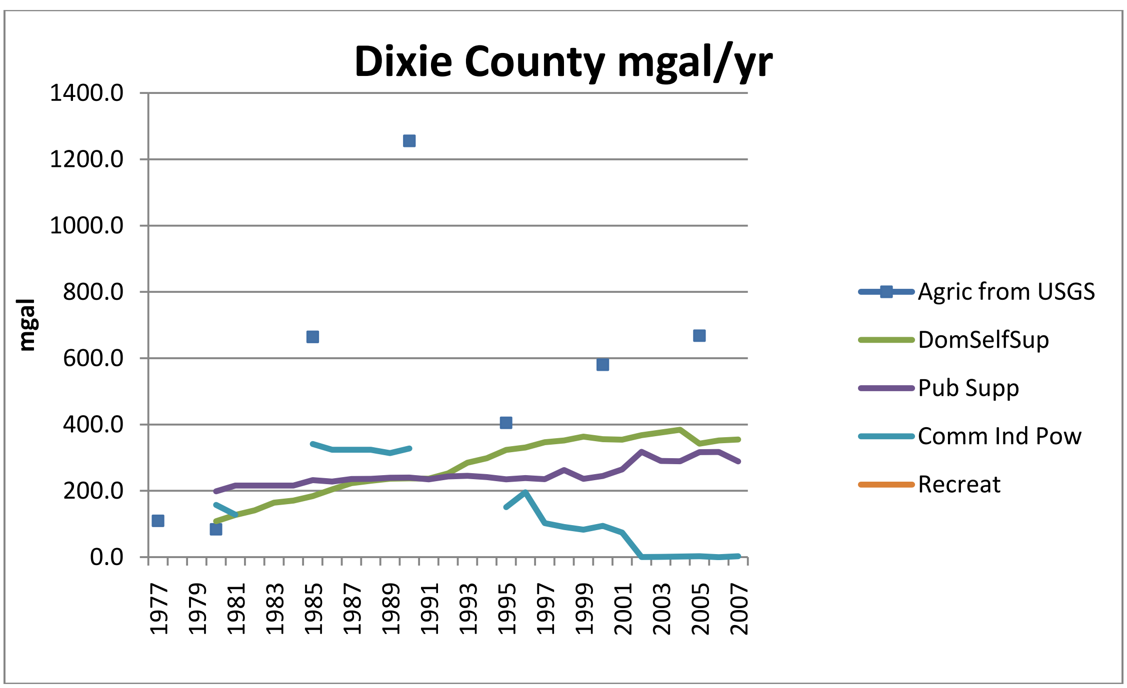


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Columbia County, FL.

DIXIE Groundwater withdrawal (M gall/Year)

Year	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW
1980	108	198	157		464	307
1981	127	216	128		471	343
1982	141	216			357	357
1983	164	216			380	380
1984	171	216			387	387
1985	184	232	341		758	416
1986	204	228	324		756	432
1987	223	236	324		783	459
1988	230	236	324		790	466
1989	236	240	314		790	476
1990	238	240	328		805	478
1991	237	235			471	471
1992	252	243			496	496
1993	285	246			531	531
1994	298	241			540	540
1995	323	235	151		709	558
1996	330	238	196		764	569
1997	346	235	103		684	581
1998	352	262	91		705	614
1999	363	236	83		682	599
2000	356	245	94		695	601
2001	354	264	74		692	618
2002	368	318	0		686	686
2003	376	290	1		666	666
2004	384	289	2		675	673
2005	342	317	3		662	659
2006	352	317	0		669	669
2007	355	289	3		646	643

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

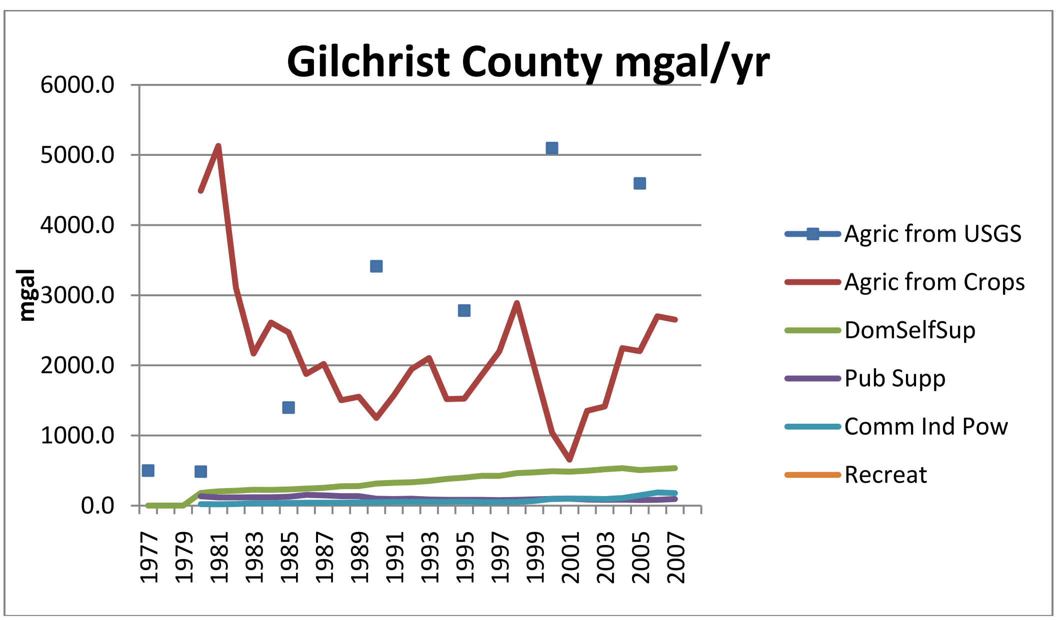


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Dixie County, FL.

GILCHRIST Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelfSup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	4489	180	134	22		4825	4825	336
1981	5130	203	117	18		5468	5468	338
1982	3109	213	117	24		3463	3463	354
1983	2169	227	120	36		2551	2551	383
1984	2610	224	120	36		2990	2990	380
1985	2470	231	125	38		2864	2864	394
1986	1876	243	154	42		2315	2315	439
1987	2020	254	146	42		2462	2462	442
1988	1503	277	136	42		1958	1958	455
1989	1553	278	135	45		2011	2011	458
1990	1250	316	98	48		1712	1712	462
1991	1576	327	93	54		2050	2050	474
1992	1948	334	98	54		2435	2435	487
1993	2104	351	86	54		2595	2595	491
1994	1518	382	84	54		2038	2038	520
1995	1525	399	82	59		2065	2065	540
1996	1864	426	82	49		2421	2421	557
1997	2198	424	78	51		2751	2751	553
1998	2889	464	84	51		3489	3489	599
1999	1962	474	89	68		2593	2593	631
2000	1040	491	97	96		1724	1724	684
2001	655	485	99	100		1338	1338	683
2002	1353	498	87	100		2038	2038	685
2003	1414	519	83	93		2108	2108	694
2004	2245	535	85	108		2973	2973	728
2005	2202	507	81	146		2936	2936	734
2006	2700	521	83	187		3491	3491	791
2007	2652	535	93	179		3460	3460	807

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

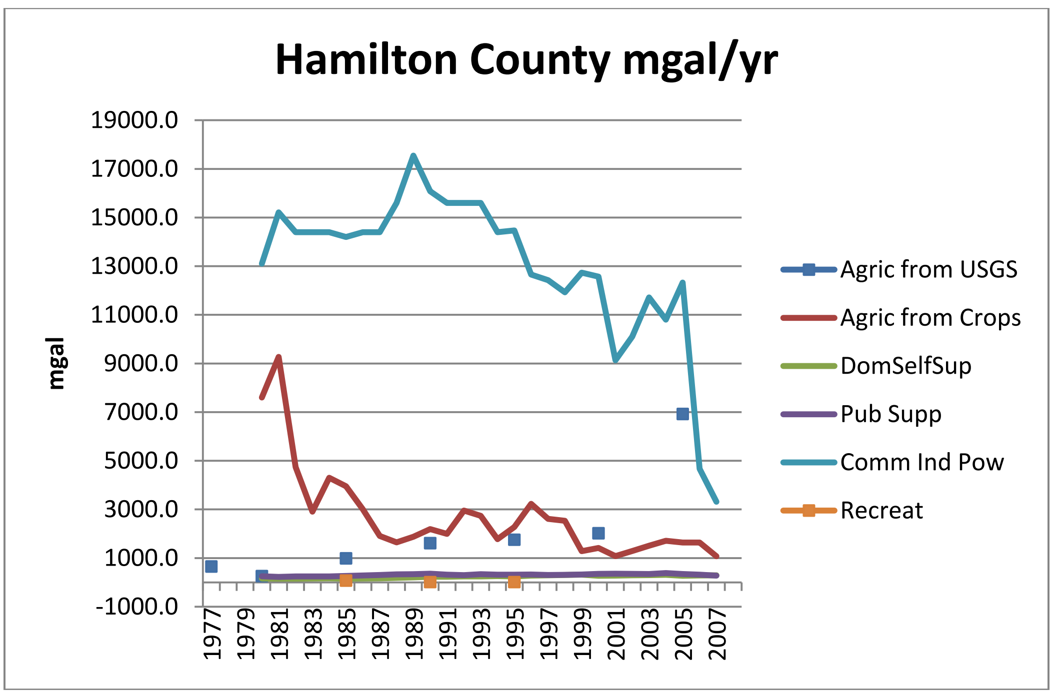


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Gilchrist County, FL.

HAMILTON Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	7598	160	250	13104		21112	21112	13514
1981	9273	149	227	15211		24860	24860	15587
1982	4739	153	247	14400		19540	19540	14801
1983	2910	158	247	14400		17715	17715	14805
1984	4299	163	247	14400		19110	19110	14811
1985	3949	154	266	14197	73	18639	18566	14618
1986	3008	158	282	14400		17848	17848	14840
1987	1910	164	303	14400		16777	16777	14867
1988	1646	182	330	15600		17758	17758	16112
1989	1875	207	337	17548		19966	19966	18091
1990	2191	230	355	16082	11	18869	18858	16667
1991	1995	230	314	15600		18140	18140	16144
1992	2952	244	299	15600		19095	19095	16143
1993	2738	244	338	15600		18920	18920	16182
1994	1775	255	319	14400		16749	16749	14974
1995	2272	242	317	14472	11	17314	17303	15031
1996	3230	279	324	12658		16490	16490	13260
1997	2610	289	301	12428		15628	15628	13018
1998	2532	305	308	11926		15071	15071	12539
1999	1280	315	321	12736		14652	14652	13372
2000	1414	269	348	12571		14602	14602	13189
2001	1077	280	359	9129		10845	10845	9768
2002	1291	290	352	10103		12037	12037	10745
2003	1507	296	341	11715		13859	13859	12352
2004	1712	309	382	10801		13205	13205	11492
2005	1637	272	341	12324		14575	14575	12937
2006	1636	284	317	4670		6906	6906	5271
2007	1076	289	278	3316		4958	4958	3883

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

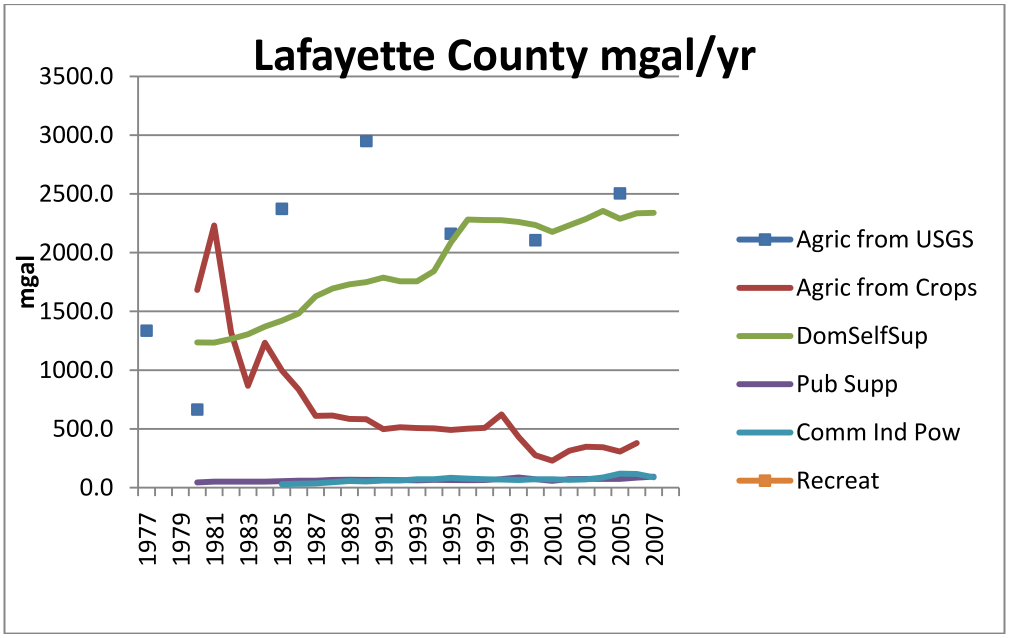


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Gilchrist County, FL.

LAFAYETTE Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	1682	1236	45	0		2962	2962	1281
1981	2231	1235	52			3518	3518	1287
1982	1320	1266	52			2637	2637	1317
1983	867	1305	52			2223	2223	1356
1984	1233	1370	52			2654	2654	1421
1985	998	1421	55	30		2504	2474	1476
1986	836	1483	59	34		2411	2377	1541
1987	610	1627	60	37		2334	2297	1687
1988	613	1695	66	46		2420	2374	1761
1989	585	1730	68	57		2440	2383	1798
1990	583	1749	66	52		2450	2398	1815
1991	498	1787	66	60		2412	2352	1854
1992	515	1755	65	60		2394	2334	1820
1993	508	1755	62	72		2397	2325	1818
1994	504	1843	67	72		2486	2414	1910
1995	491	2086	65	84		2725	2641	2150
1996	502	2281	64	78		2925	2848	2345
1997	508	2277	65	71		2922	2850	2342
1998	623	2276	73	69		3041	2972	2348
1999	433	2261	87	65		2846	2781	2348
2000	276	2236	72	71		2655	2583	2307
2001	230	2177	58	71		2536	2464	2235
2002	314	2232	73	66		2685	2619	2305
2003	348	2287	74	71		2780	2709	2361
2004	344	2355	75	87		2860	2774	2429
2005	307	2288	74	119		2787	2669	2362
2006	380	2335	86	117		2917	2800	2421
2007		2339	93	88		2520	2432	2432

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

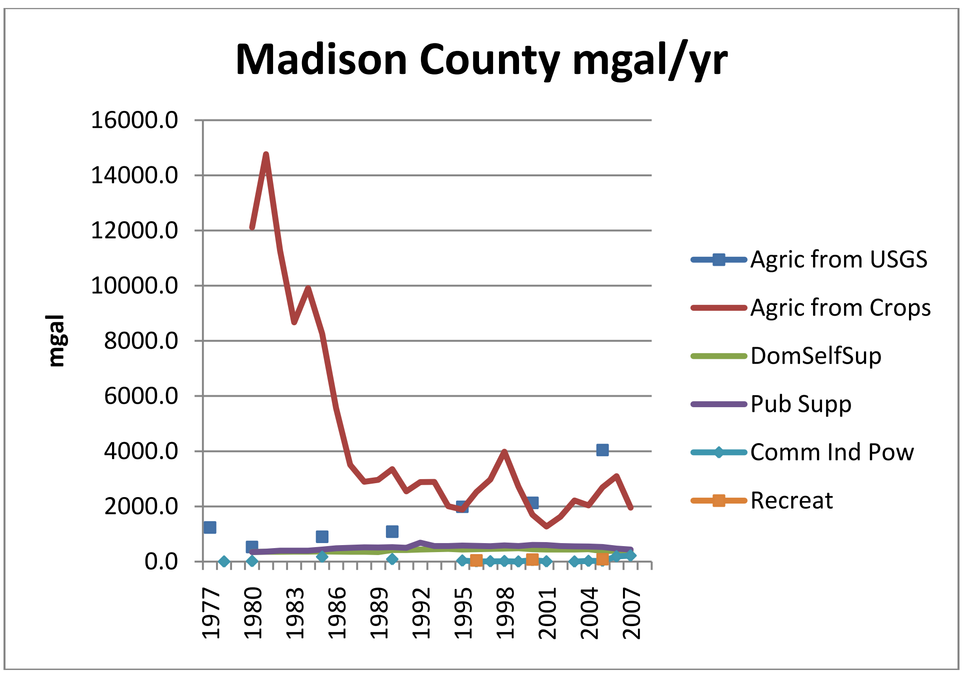


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Lafayette County, FL.

MADISON Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelfSup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	12115	347	343	15		12820	12805	690
1981	14769	355	360			15484	15484	715
1982	11267	356	396			12019	12019	752
1983	8670	360	396			9426	9426	756
1984	9912	362	396			10671	10671	758
1985	8259	366	433	172		9229	9057	798
1986	5558	359	480			6397	6397	839
1987	3509	353	496			4359	4359	850
1988	2894	355	516			3764	3764	871
1989	2962	345	508			3814	3814	853
1990	3350	419	523	85		4377	4292	942
1991	2544	416	499			3460	3460	916
1992	2881	433	683			3997	3997	1116
1993	2888	444	565			3897	3897	1009
1994	2003	460	564			3027	3027	1024
1995	1884	434	577	34		2929	2895	1011
1996	2521	448	570	7	40	3587	3540	1018
1997	2976	459	559	7		4001	3994	1018
1998	3982	467	586	14		5049	5035	1054
1999	2714	482	562	0		3758	3758	1044
2000	1700	448	601	51	73	2873	2749	1049
2001	1268	435	599	4		2306	2302	1035
2002	1624	434	563			2620	2620	996
2003	2213	437	554	0		3203	3203	991
2004	2034	446	542	21		3043	3022	989
2005	2689	385	527	26	84	3711	3601	912
2006	3098	390	471	186		4145	3959	861
2007	1957	390	436	216		2998	2782	826

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

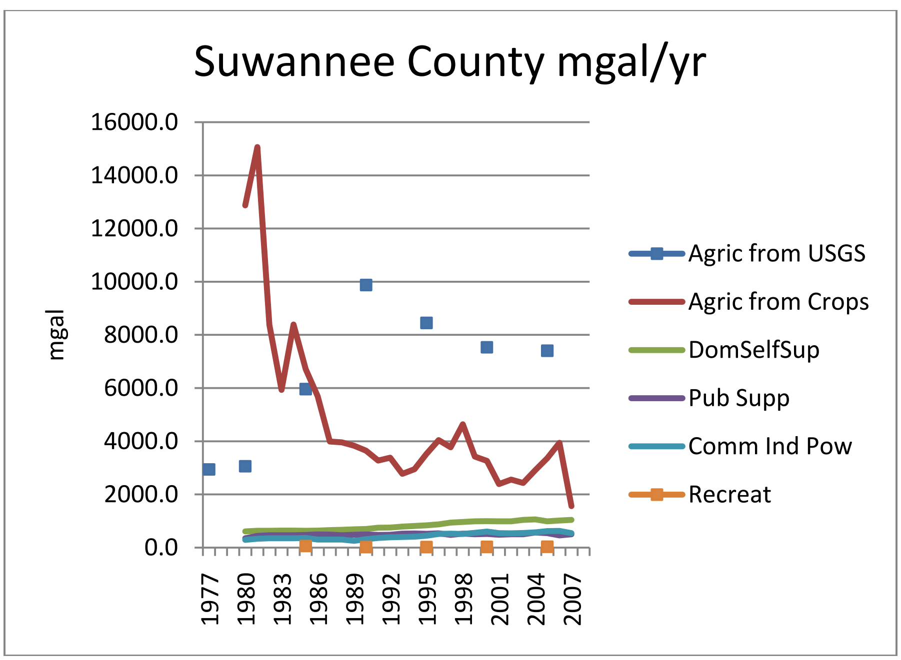


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Madison County, FL.

SUWANNEE Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	12870	607	351	289		14116	14116	1246
1981	15068	634	439	329		16471	16471	1403
1982	8380	629	463	348		9820	9820	1440
1983	5932	639	463	348		7382	7382	1450
1984	8393	636	463	348		9840	9840	1447
1985	6710	632	474	361	58	8237	8178	1468
1986	5693	639	496	300		7128	7128	1435
1987	3989	656	486	300		5430	5430	1442
1988	3960	670	462	300		5393	5393	1433
1989	3832	686	479	250		5248	5248	1415
1990	3645	701	496	316	18	5176	5157	1512
1991	3273	744	476	360		4854	4854	1580
1992	3378	749	479	384		4991	4991	1612
1993	2770	788	523	396		4477	4477	1707
1994	2946	814	528	408		4696	4696	1750
1995	3526	838	520	446	18	5348	5330	1804
1996	4044	872	537	510		5963	5963	1919
1997	3769	942	479	521		5710	5710	1942
1998	4640	962	522	514		6638	6638	1998
1999	3420	987	502	557		5466	5466	2046
2000	3263	992	512	601	26	5394	5368	2105
2001	2389	987	482	539		4397	4397	2009
2002	2554	987	499	534		4574	4574	2019
2003	2430	1041	503	550		4523	4523	2093
2004	2910	1059	567	574		5110	5110	2200
2005	3360	989	545	620	29	5542	5513	2153
2006	3941	1014	457	627		6039	6039	2098
2007	1558	1041	500	543		3642	3642	2083

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

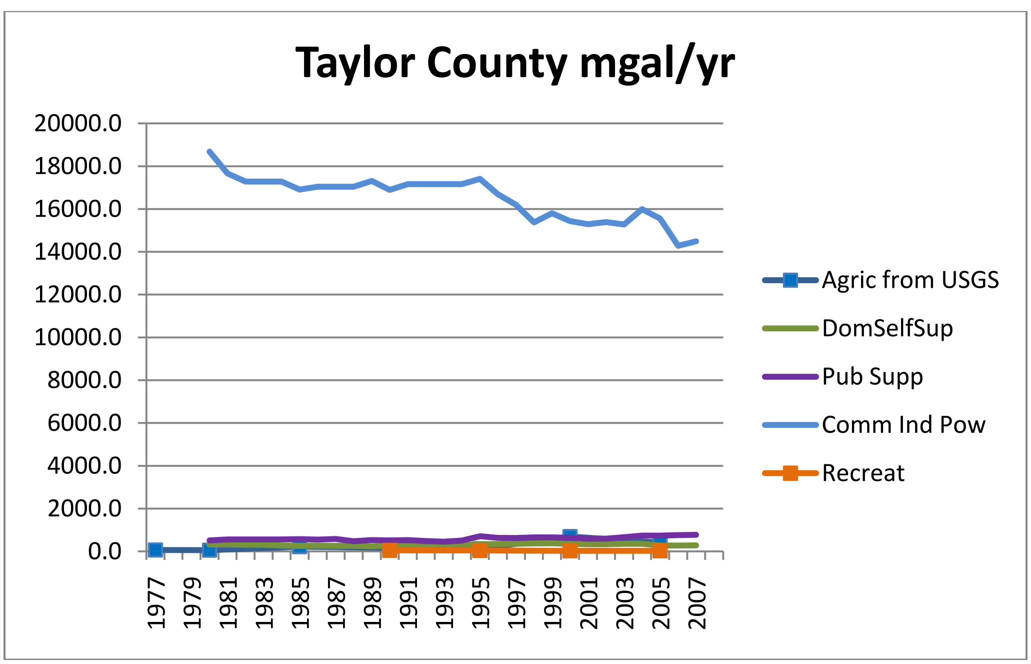


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Madison County, FL.

Taylor Groundwater withdrawal (M gall/Year)

Year	Agricultural	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW
1980		317	511	18684		19511	19511
1981		323	562	17667		18551	18551
1982		308	562	17280		18150	18150
1983		312	562	17280		18154	18154
1984		275	562	17280		18117	18117
1985		262	576	16907		17745	17745
1986		263	549	17040		17852	17852
1987		262	582	17040		17884	17884
1988		263	473	17040		17776	17776
1989		238	531	17309		18078	18078
1990		276	515	16895	47	17733	17686
1991		284	527	17160		17971	17971
1992		286	487	17160		17932	17932
1993		284	454	17160		17899	17899
1994		288	508	17160		17956	17956
1995		323	707	17412	40	18483	18442
1996		349	634	16688		17671	17671
1997		355	625	16195		17176	17176
1998		368	657	15373		16398	16398
1999		380	653	15801		16833	16833
2000		345	633	15430	26	16435	16409
2001		337	597	15290		16223	16223
2002		336	598	15391		16326	16326
2003		358	666	15277		16300	16300
2004		358	740	15996		17094	17094
2005		271	736	15552	29	16588	16558
2006		276	757	14279		15312	15312
2007		281	776	14493		15550	15550

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

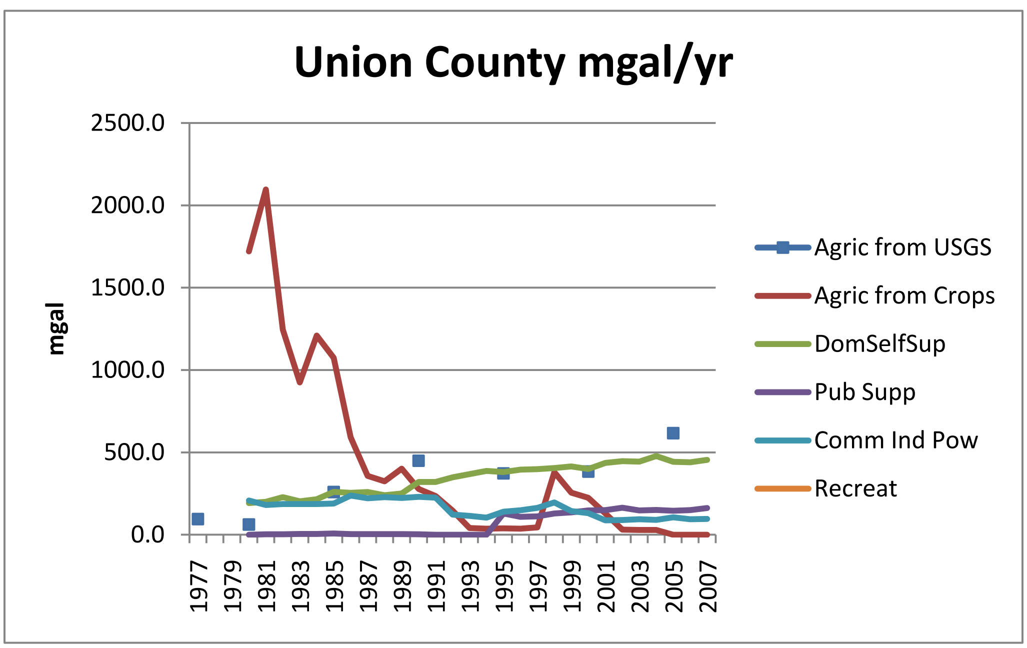


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Taylor County, FL.

UNION Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	DomSelf Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	1721	192	0	207		2120	2120	399
1981	2096	200	2	180		2479	2476	380
1982	1246	228	2	186		1662	1659	414
1983	925	203	5	186		1319	1314	389
1984	1210	216	5	186		1616	1611	402
1985	1075	260	7	189		1531	1523	449
1986	592	254	4	238		1087	1083	492
1987	357	259	4	221		841	838	480
1988	324	239	4	228		795	791	467
1989	400	250	4	223		877	874	473
1990	278	321	3	230		831	828	551
1991	234	320		225		779	779	545
1992	146	349		122		617	617	470
1993	40	368		114		522	522	482
1994	37	388		104		528	528	492
1995	39	380	129	140		688	558	520
1996	37	395	109	148		688	580	543
1997	44	398	111	163		717	605	561
1998	379	404	129	196		1109	979	600
1999	255	415	136	143		948	813	558
2000	224	399	148	131		902	754	529
2001	129	436	149	87		801	652	523
2002	31	446	164	89		729	566	535
2003	29	444	147	94		713	566	537
2004	29	477	151	90		747	596	567
2005	0	443	145	106		693	548	548
2006	0	440	150	94		683	533	533
2007	0	455	162	96		712	550	550

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag



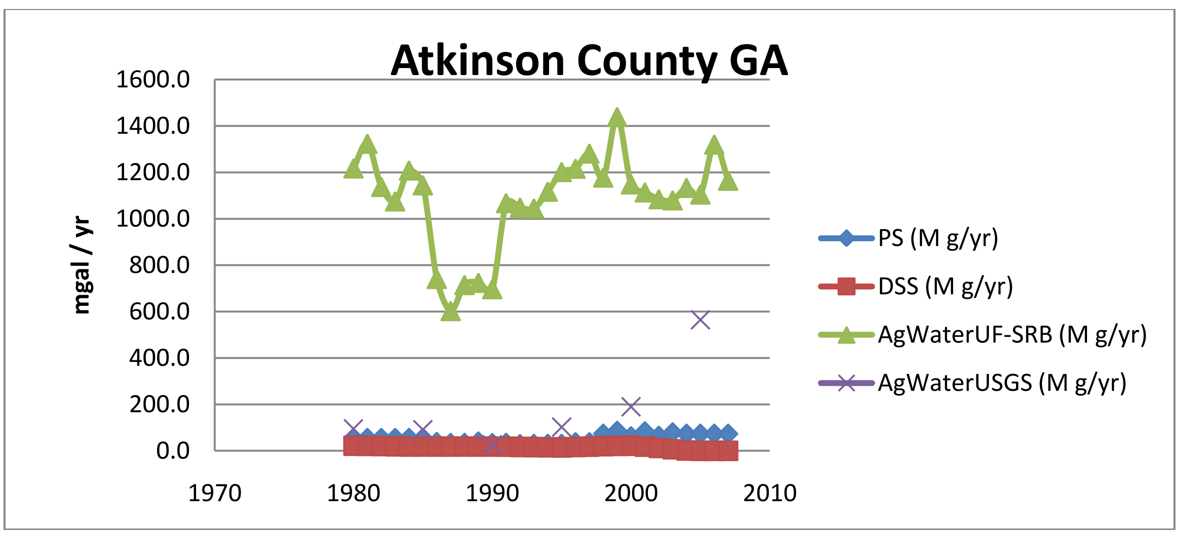
Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports for Union County, FL.

Appendix 16.2 Georgia Ground Water Withdrawals

Atkinson Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	1218	22	55			1295	1295	76.7
1981	1324	21	55			1400	1400	75.9
1982	1138	20	55			1213	1213	75.0
1983	1076	19	55			1150	1150	74.1
1984	1209	18	55			1282	1282	73.2
1985	1145	18	55			1218	1218	73.0
1986	742	18	37			797	797	55.5
1987	603	18	33			655	655	51.5
1988	715	18	34			767	767	51.8
1989	725	18	39			782	782	57.7
1990	698	18	33			749	749	51.1
1991	1068	18	34			1119	1119	51.1
1992	1049	17	28			1094	1094	44.7
1993	1045	16	29			1090	1090	44.9
1994	1118	15	29			1162	1162	44.0
1995	1202	15	29			1246	1246	43.8
1996	1217	16	36			1269	1269	52.2
1997	1282	18	37			1336	1336	54.4
1998	1178	20	73			1271	1271	92.7
1999	1439	22	85			1546	1546	106.9
2000	1149	22	62			1233	1233	84.0
2001	1115	18	83			1215	1215	100.7
2002	1085	12	64			1162	1162	76.3
2003	1080	7	79			1166	1166	85.4
2004	1134	1	73			1208	1208	74.1
2005	1105	0	73			1178	1178	73.0
2006	1321	0	73			1394	1394	73.0
2007	1165	0	73			1238	1238	73.0

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

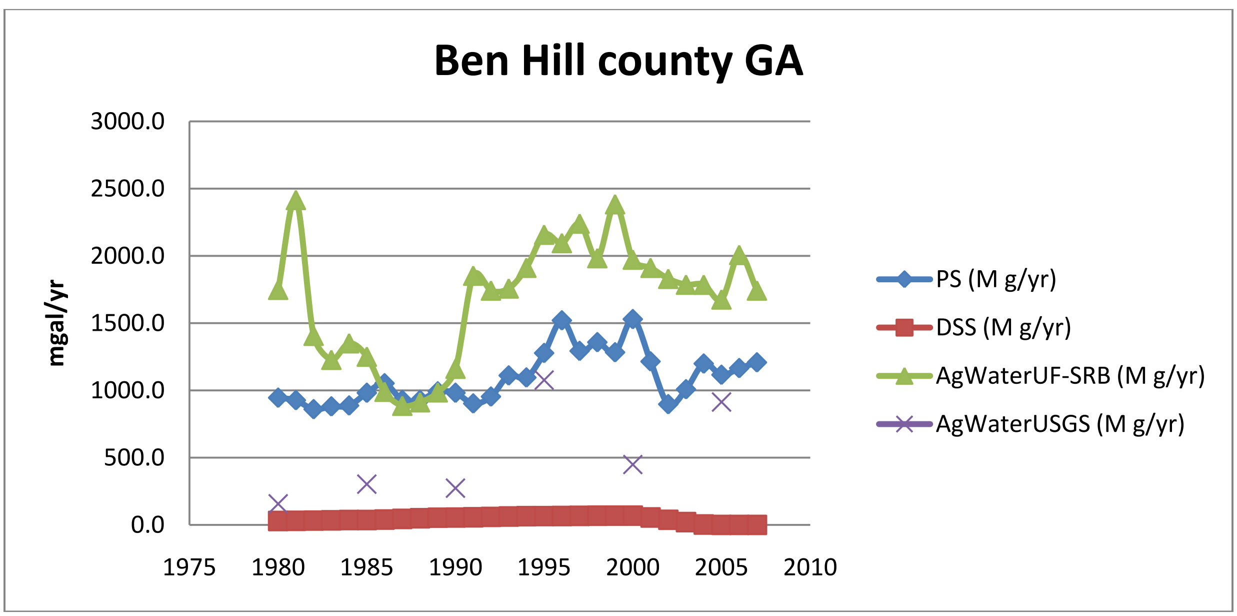


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Ben Hill Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	1748.5	29.2	945			2723.1	2723.1	974.6
1981	2416.7	30.7	927			3374.1	3374.1	957.4
1982	1406.5	32.5	860			2298.9	2298.9	892.4
1983	1227.9	34.3	881			2143.0	2143.0	915.1
1984	1350.9	36.1	887			2274.3	2274.3	923.5
1985	1251.2	36.5	982			2269.6	2269.6	1018.4
1986	990.3	40.2	1052			2082.8	2082.8	1092.4
1987	886.1	44.7	928			1859.0	1859.0	972.9
1988	912.1	49.3	928			1889.2	1889.2	977.1
1989	985.9	53.8	992			2031.8	2031.8	1045.9
1990	1161.3	54.8	982			2197.9	2197.9	1036.6
1991	1853.6	56.9	903			2813.2	2813.2	959.6
1992	1742.8	59.7	954			2756.2	2756.2	1013.4
1993	1758.5	62.4	1111			2931.6	2931.6	1173.1
1994	1912.4	65.2	1096			3073.3	3073.3	1160.9
1995	2158.2	65.7	1278			3501.4	3501.4	1343.2
1996	2095.9	66.4	1520			3682.6	3682.6	1586.7
1997	2240.7	67.3	1293			3601.2	3601.2	1360.5
1998	1983.9	68.3	1358			3410.1	3410.1	1426.3
1999	2384.8	69.2	1283			3737.0	3737.0	1352.1
2000	1973.0	69.4	1529			3571.7	3571.7	1598.7
2001	1912.0	55.5	1215			3182.6	3182.6	1270.6
2002	1830.1	38.1	897			2765.3	2765.3	935.1
2003	1786.8	20.8	1008			2815.7	2815.7	1029.0
2004	1786.3	3.5	1199			2988.7	2988.7	1202.4
2005	1676.7	0.0	1116			2792.3	2792.3	1115.6
2006	2008.0	0.0	1165			3173.2	3173.2	1165.2
2007	1743.2	0.0	1208			2951.2	2951.2	1208.0

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

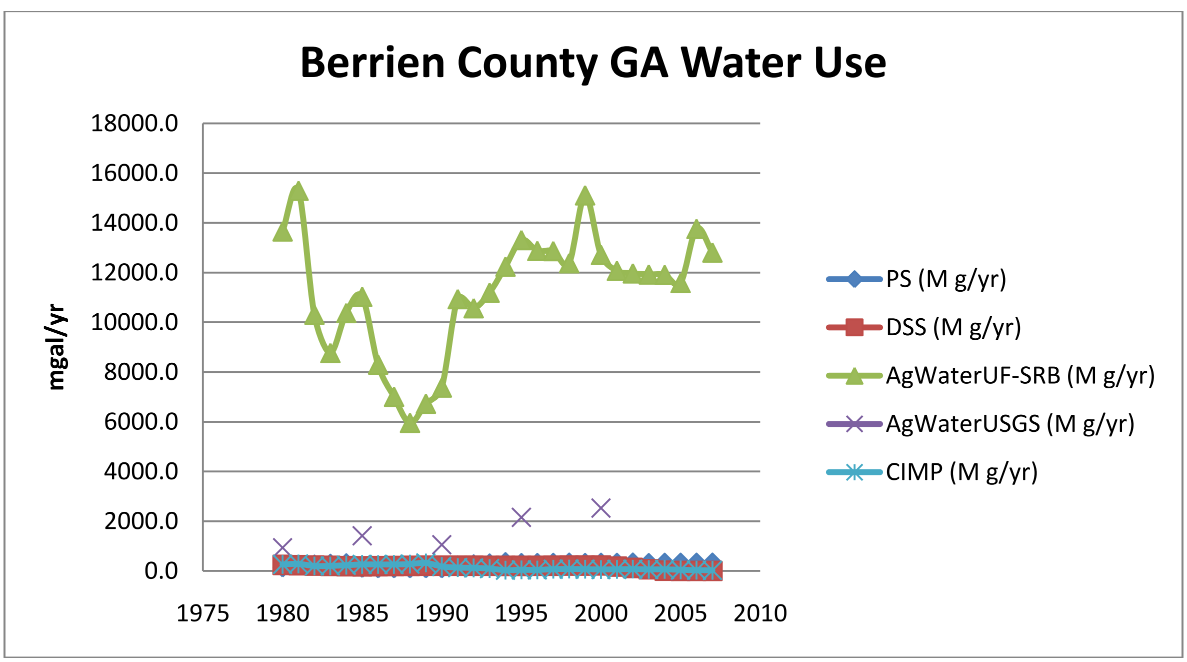


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Berrien Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	13662	241	146	261		14310	14310	648
1981	15298	230	228	282		16037	16037	739
1982	10312	216	247	200		10976	10976	664
1983	8768	203	278	201		9450	9450	682
1984	10376	189	299	231		11095	11095	719
1985	11031	186	128	261		11605	11605	575
1986	8304	191	110	260		8864	8864	560
1987	7008	198	110	260		7576	7576	567
1988	5959	204	110	277		6549	6549	590
1989	6728	210	110	324		7372	7372	644
1990	7380	212	110	178		7879	7879	499
1991	10936	210	219	134		11499	11499	563
1992	10571	208	256	122		11156	11156	585
1993	11195	207	292	92		11786	11786	591
1994	12246	205	346	29		12825	12825	580
1995	13312	204	310	44		13870	13870	558
1996	12877	207	312	39		13435	13435	558
1997	12869	211	318	69		13468	13468	598
1998	12380	215	327	77		12999	12999	618
1999	15114	218	314	69		15715	15715	601
2000	12716	219	321	57		13314	13314	598
2001	12077	175	319	64		12635	12635	557
2002	11973	120	328	73		12495	12495	521
2003	11929	66	309	58		12362	12362	433
2004	11912	11	321	62		12306	12306	394
2005	11585	0	323	44		11951	11951	366
2006	13765	0	324	29		14117	14117	353
2007	12813	0	327	22		13161	13161	348

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

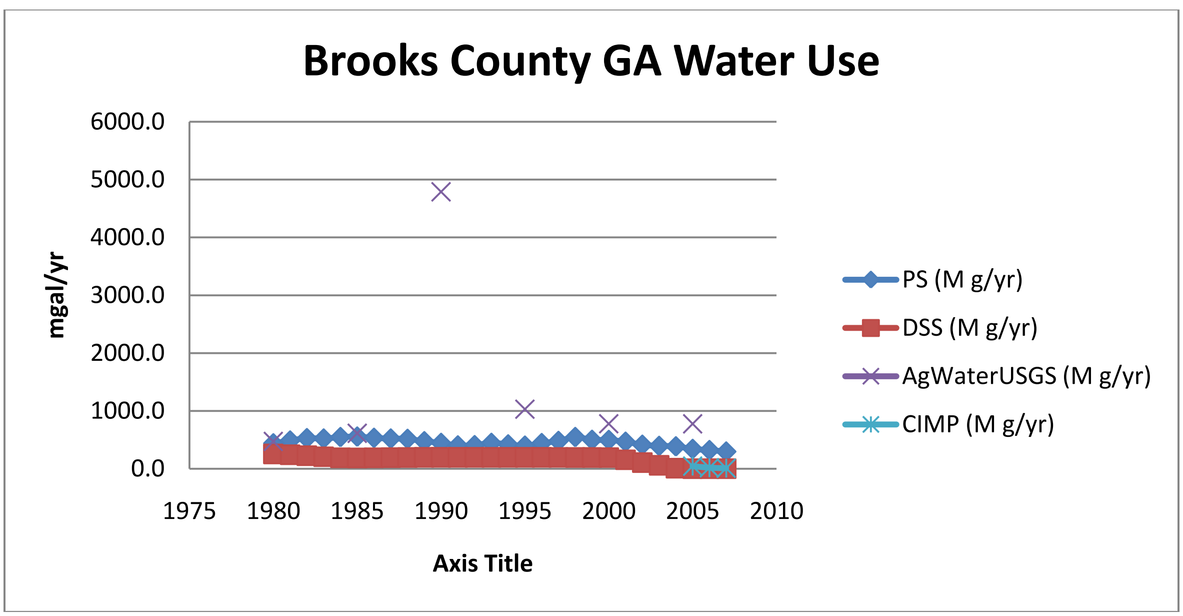


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Brooks Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	18121.8	255.5	438.0			18815.3	18815.3	693.5
1981	24142.8	241.6	486.5			24870.9	24870.9	728.2
1982	18556.1	224.3	527.4			19307.8	19307.8	751.7
1983	15592.3	207.0	521.2			16320.5	16320.5	728.2
1984	19889.5	189.6	546.4			20625.6	20625.6	736.0
1985	19181.1	186.2	554.8			19922.1	19922.1	741.0
1986	15064.6	188.3	533.3			15786.2	15786.2	721.6
1987	11917.3	191.1	521.2			12629.6	12629.6	712.3
1988	12752.8	193.8	515.0			13461.7	13461.7	708.8
1989	12855.6	196.6	474.5			13526.7	13526.7	671.1
1990	14516.3	197.1	445.3			15158.7	15158.7	642.4
1991	14044.4	197.1	401.9			14643.3	14643.3	599.0
1992	13572.4	197.1	406.2			14175.7	14175.7	603.3
1993	14335.7	197.1	446.0			14978.8	14978.8	643.1
1994	14908.3	197.1	419.8			15525.1	15525.1	616.9
1995	16185.3	197.1	397.9			16780.2	16780.2	595.0
1996	16566.0	196.4	442.1			17204.5	17204.5	638.5
1997	16367.6	195.5	478.9			17041.9	17041.9	674.3
1998	16368.3	194.5	547.1			17109.9	17109.9	741.6
1999	19031.2	193.6	498.5			19723.3	19723.3	692.1
2000	15830.7	193.5	496.4			16520.6	16520.6	689.9
2001	15029.7	154.8	465.6			15650.0	15650.0	620.4
2002	14993.8	106.4	413.4			15513.6	15513.6	519.8
2003	14498.1	58.0	393.8			14950.0	14950.0	451.9
2004	14827.7	9.7	386.5			15223.9	15223.9	396.2
2005	14228.3	0.0	341.0	45.7		14615.0	14569.3	341.0
2006	16936.7	0.0	321.1	18.1		17275.9	17257.8	321.1
2007	16820.6	0.0	296.3	9.5		17126.4	17116.9	296.3

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

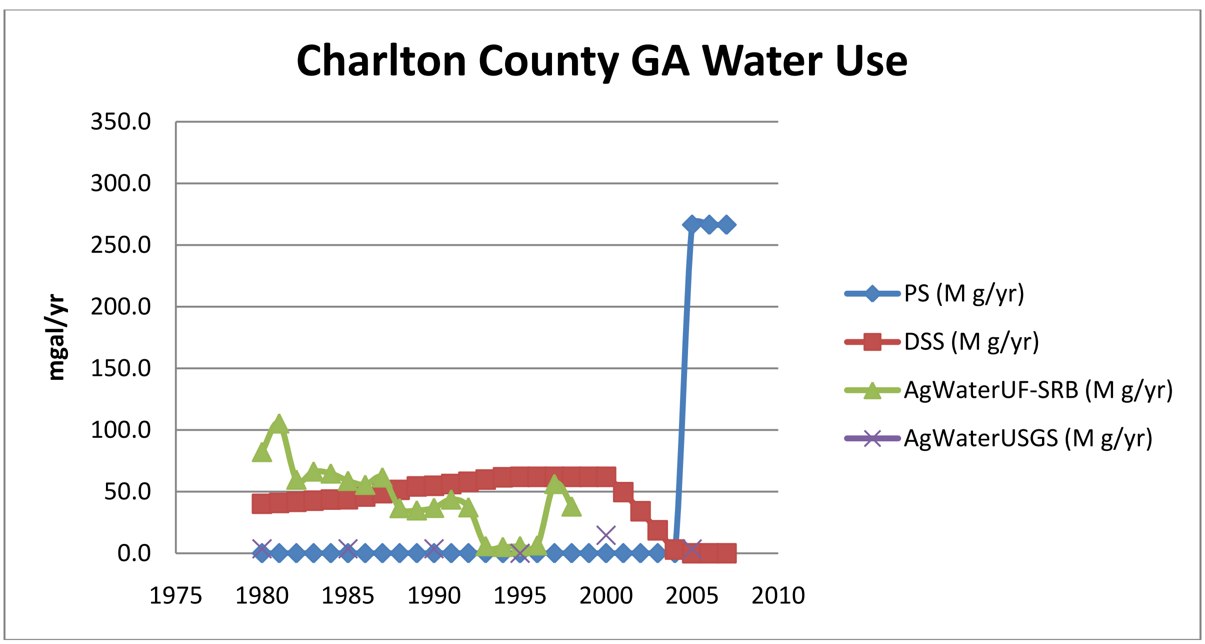


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Charlton Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	262.0	40.15				302.1	40.15	40.15
1981	335.6	40.88				376.4	40.88	40.88
1982	190.5	41.79				232.3	41.79	41.79
1983	211.5	42.71				254.2	42.71	42.71
1984	206.3	43.62				250.0	43.62	43.62
1985	187.4	43.80				231.2	43.80	43.80
1986	177.2	45.99				223.2	45.99	45.99
1987	196.3	48.73				245.0	48.73	48.73
1988	117.1	51.47				168.6	51.47	51.47
1989	111.2	54.20				165.4	54.20	54.20
1990	117.7	54.75				172.5	54.75	54.75
1991	139.3	56.21				195.5	56.21	56.21
1992	119.2	58.04				177.2	58.04	58.04
1993	18.9	59.86				78.8	59.86	59.86
1994	16.9	61.69				78.6	61.69	61.69
1995	18.9	62.05				81.0	62.05	62.05
1996	21.0	62.05				83.1	62.05	62.05
1997	179.4	62.05				241.4	62.05	62.05
1998	121.3	62.05				183.3	62.05	62.05
1999		62.05				62.1	62.05	62.05
2000		62.05				62.1	62.05	62.05
2001		49.64				49.6	49.64	49.64
2002		34.13				34.1	34.13	34.13
2003		18.62				18.6	18.62	18.62
2004		3.10				3.1	3.10	3.10
2005		0.00	266.5			266.5		
2006		0.00	266.5			266.5		
2007		0.00	266.5			266.5		

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

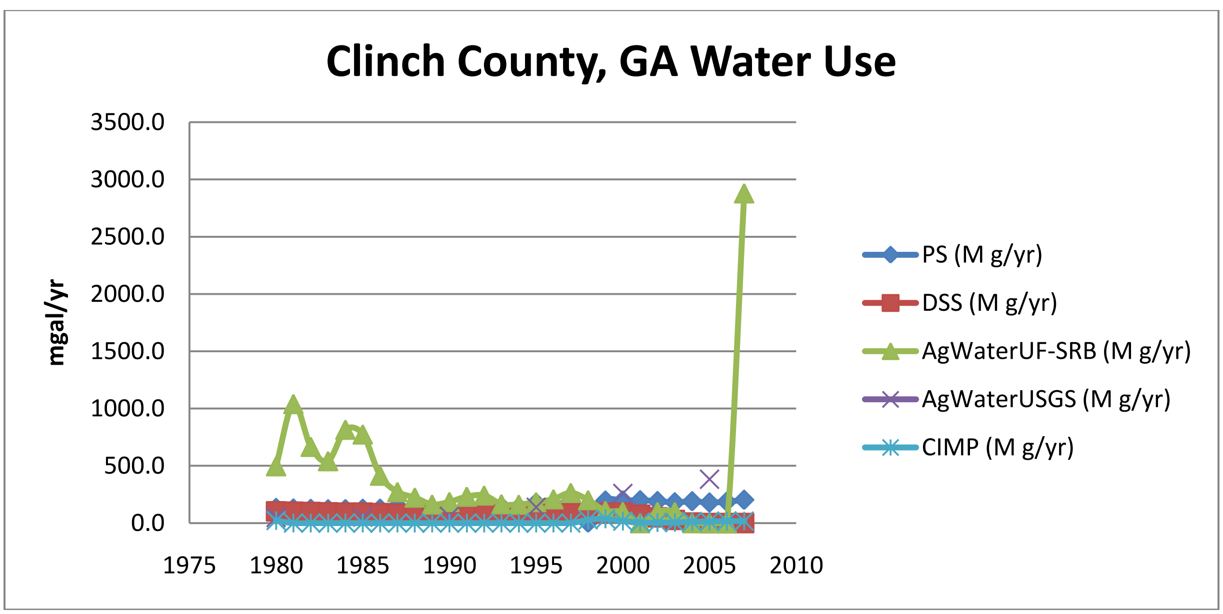


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Clinch Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	497.3	102.2	131.4	21.9		752.8	730.9	233.6
1981	1040.4	100.0	126.7			1267.1	1267.1	226.7
1982	666.6	97.3	123.0			886.9	886.9	220.3
1983	541.5	94.5	120.1			756.1	756.1	214.6
1984	816.1	91.8	120.5			1028.4	1028.4	212.2
1985	774.9	91.3	124.1			990.2	990.2	215.4
1986	414.9	86.9	124.5			626.2	626.2	211.3
1987	272.2	81.4	147.8			501.5	501.5	229.2
1988	224.0	75.9	109.1			409.0	409.0	185.1
1989	163.1	70.4	105.1			338.7	338.7	175.6
1990	185.1	69.4	109.5			364.0	364.0	178.9
1991	231.5	71.5	112.1			415.1	415.1	183.6
1992	241.7	74.3	131.0			447.0	447.0	205.3
1993	165.9	77.0	142.4			385.3	385.3	219.4
1994	162.2	79.8	137.2			379.1	379.1	217.0
1995	183.7	80.3	175.2			439.2	439.2	255.5
1996	209.0	82.5	143.8			435.3	435.3	226.3
1997	264.2	85.2	192.7			542.1	542.1	277.9
1998	201.5	88.0	3.7	28.1		321.2	293.1	91.6
1999	107.6	90.7	196.0	36.9		431.1	394.2	286.7
2000	98.3	91.3	197.1	17.2		403.8	386.6	288.4
2001	0.0	73.0	199.0	5.5		277.5	272.0	272.0
2002	98.3	50.2	191.6	4.7		344.8	340.1	241.8
2003	98.3	27.4	181.1	5.1		311.8	306.7	208.4
2004	0.0	4.6	190.7	11.3		206.6	195.2	195.2
2005	0.0	0.0	179.6	14.0		193.6	179.6	179.6
2006	0.0	0.0	187.1	16.9		204.0	187.1	187.1
2007	78.4	0.0	203.3	17.5		299.2	281.7	203.3

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

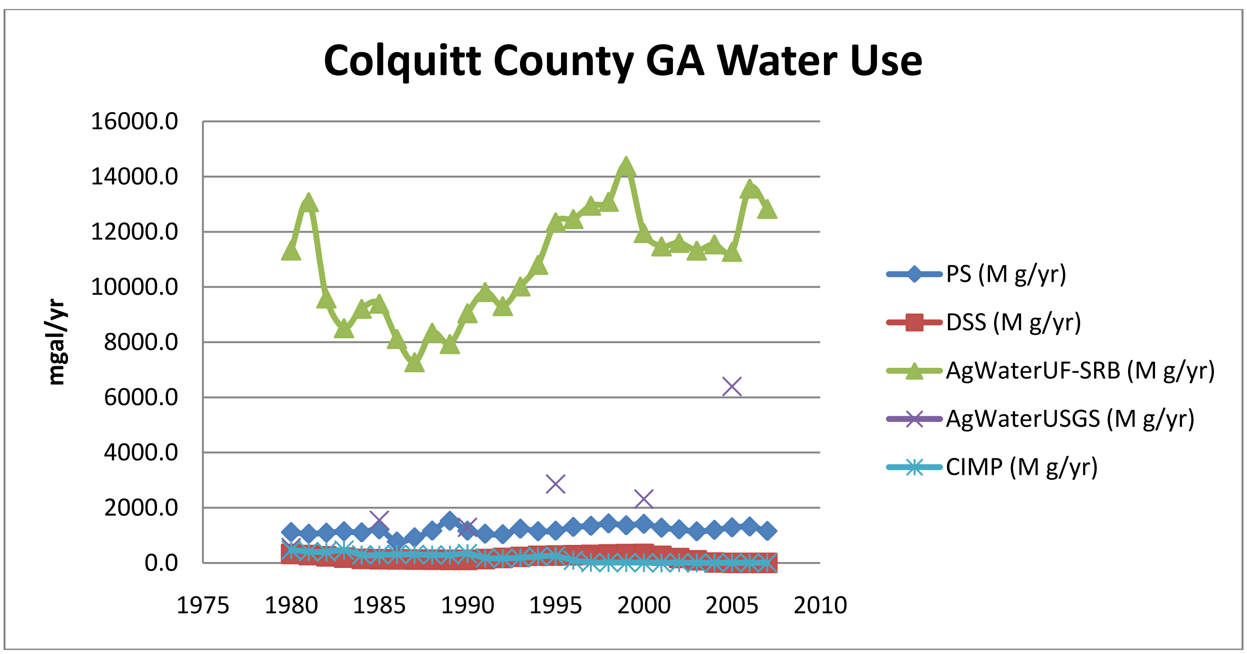


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Colquitt Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	11331.4	324.9	1113.3	467.2		13236.7	13236.7	1905.3
1981	13084.5	286.9	1053.0	410.3		14834.7	14834.7	1750.2
1982	9592.6	239.4	1091.7	396.4		11320.1	11320.1	1727.5
1983	8514.0	192.0	1141.7	464.6		10312.4	10312.4	1798.4
1984	9217.1	144.5	1103.4	290.5		10755.6	10755.6	1538.5
1985	9402.8	135.1	1211.8	287.6		11037.2	11037.2	1634.5
1986	8123.6	129.9	769.4	309.2		9332.1	9332.1	1208.5
1987	7280.5	123.6	920.5	307.7		8632.3	8632.3	1351.8
1988	8353.4	117.2	1167.6	288.7		9927.0	9927.0	1573.5
1989	7938.5	110.8	1522.8	286.9		9859.0	9859.0	1920.4
1990	9056.9	109.5	1164.4	338.7		10669.5	10669.5	1612.6
1991	9826.6	140.9	1055.2	182.5		11205.2	11205.2	1378.6
1992	9314.5	180.1	1035.5	159.9		10690.0	10690.0	1375.5
1993	10027.6	219.4	1237.7	185.4		11670.1	11670.1	1642.5
1994	10812.7	258.6	1143.9	233.6		12448.8	12448.8	1636.1
1995	12353.9	266.5	1164.4	248.2		14032.9	14032.9	1679.0
1996	12470.7	278.1	1300.2	93.7		14142.7	14142.7	1672.0
1997	12956.0	292.7	1342.0	15.7		14606.4	14606.4	1650.4
1998	13098.4	307.3	1429.1	12.9		14847.7	14847.7	1749.4
1999	14400.8	321.9	1360.1	10.5		16093.3	16093.3	1692.5
2000	11963.5	324.9	1412.6	10.5		13711.5	13711.5	1747.9
2001	11479.2	259.9	1273.6	2.2		13014.9	13014.9	1535.7
2002	11606.1	178.7	1213.1	10.2		13008.2	13008.2	1402.0
2003	11327.3	97.5	1142.9	0.0		12567.6	12567.6	1240.4
2004	11554.7	16.2	1195.7	2.9		12769.6	12769.6	1214.9
2005	11281.5	0.0	1284.9	3.7		12570.1	12570.1	1288.6
2006	13577.9	0.0	1315.0	3.7		14896.5	14896.5	1318.6
2007	12839.6	0.0	1154.8	4.0		13998.4	13998.4	1158.8

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

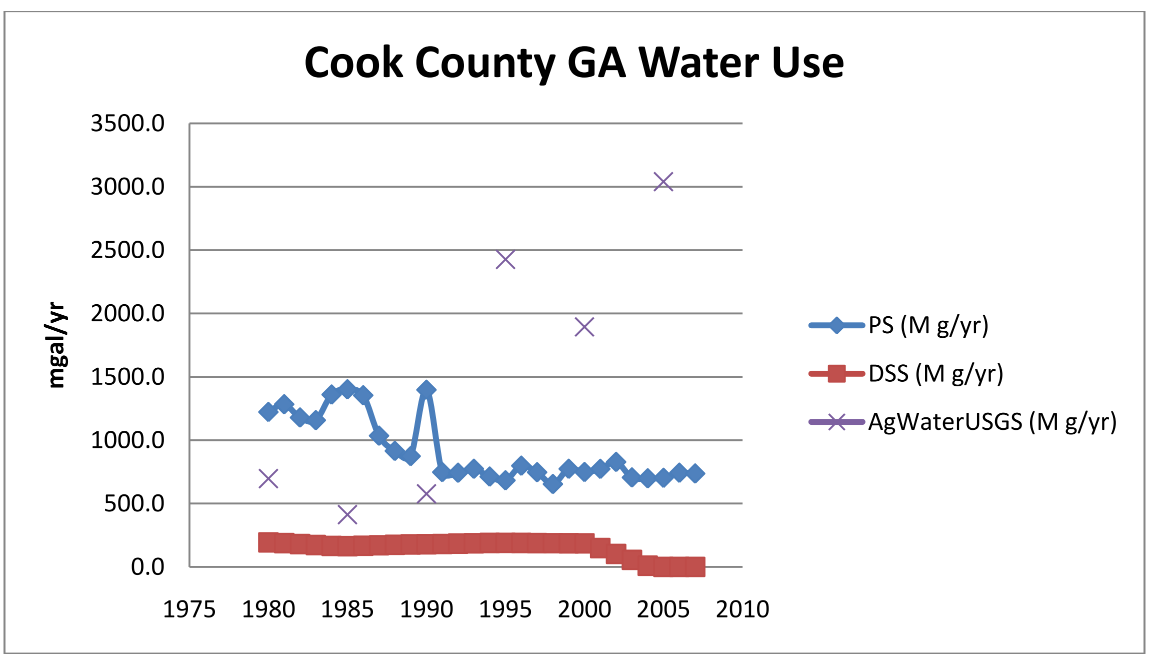


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Cook Groundwater withdrawal (M gall/Year)

year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	9874.3	193.5	1222.8			11290.5	11290.5	1416.2
1981	9511.4	187.6	1283.7			10982.7	10982.7	1471.3
1982	8069.2	180.3	1179.0			9428.4	9428.4	1359.3
1983	6617.6	173.0	1157.8			7948.4	7948.4	1330.8
1984	7426.8	165.7	1360.4			8952.9	8952.9	1526.1
1985	7499.2	164.3	1401.6			9065.1	9065.1	1565.9
1986	6105.3	167.2	1354.5			7627.0	7627.0	1521.7
1987	5379.3	170.8	1035.1			6585.3	6585.3	1206.0
1988	6340.9	174.5	915.1			7430.5	7430.5	1089.5
1989	5715.8	178.1	873.8			6767.7	6767.7	1051.9
1990	5826.0	178.9	1398.0			7402.8	7402.8	1576.8
1991	7918.9	181.0	747.5			8847.5	8847.5	928.6
1992	7306.2	183.8	742.4			8232.3	8232.3	926.2
1993	7497.2	186.5	773.8			8457.5	8457.5	960.3
1994	7810.6	189.3	712.1			8712.0	8712.0	901.4
1995	8133.3	189.8	682.6			9005.7	9005.7	872.4
1996	8163.7	189.1	798.1			9150.9	9150.9	987.2
1997	8241.9	188.2	746.7			9176.7	9176.7	934.8
1998	8045.6	187.2	653.4			8886.2	8886.2	840.6
1999	9798.4	186.3	773.7			10758.4	10758.4	960.0
2000	8115.9	186.2	748.3			9050.3	9050.3	934.4
2001	7733.3	148.9	773.1			8655.3	8655.3	922.0
2002	7680.1	102.4	828.2			8610.7	8610.7	930.6
2003	7670.7	55.8	705.5			8432.0	8432.0	761.3
2004	7591.3	9.3	698.5			8299.1	8299.1	707.8
2005	7135.1	0.0	702.3			7837.3	7837.3	702.3
2006	8417.3	0.0	742.6			9160.0	9160.0	742.6
2007	8036.6	0.0	736.5			8773.2	8773.2	736.5

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

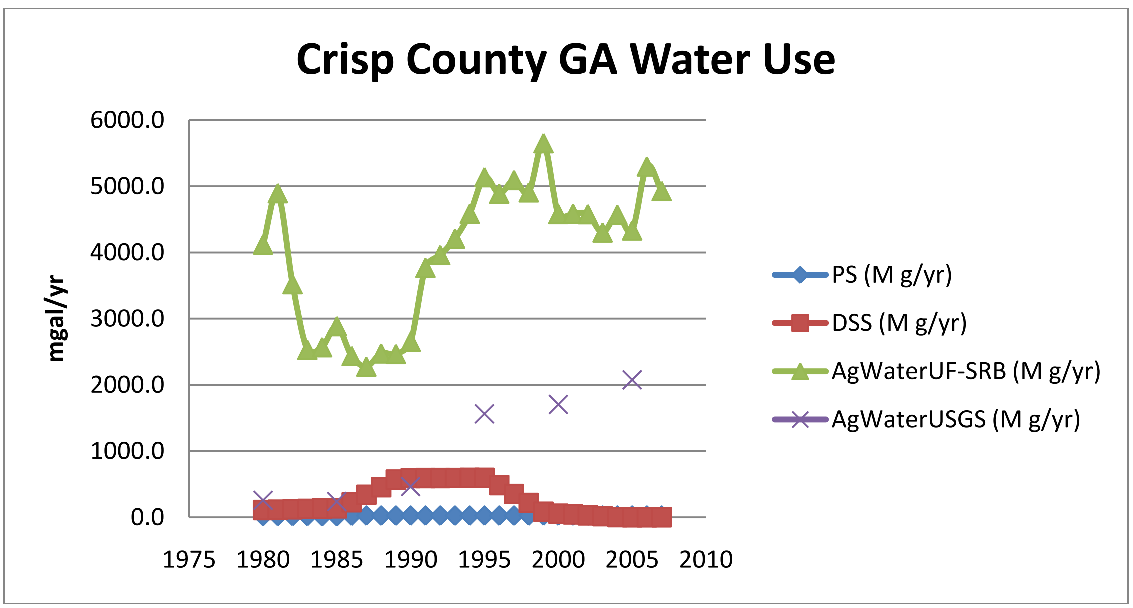


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Crisp Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	4120.1	109.5	18.3			4247.9	4247.9	127.8
1981	4895.8	114.6	18.3			5028.7	5028.7	132.9
1982	3521.6	121.0	18.3			3660.8	3660.8	139.2
1983	2530.1	127.4	18.3			2675.7	2675.7	145.6
1984	2568.2	133.8	14.6			2716.6	2716.6	148.4
1985	2886.6	135.1	14.6			3036.3	3036.3	149.7
1986	2435.6	226.3	21.9			2683.8	2683.8	248.2
1987	2275.8	340.4	25.6			2641.7	2641.7	365.9
1988	2474.6	454.4	25.6			2954.6	2954.6	480.0
1989	2465.4	568.5	25.6			3059.4	3059.4	594.0
1990	2651.9	591.3	25.6			3268.8	3268.8	616.9
1991	3768.9	592.0	25.6			4386.4	4386.4	617.6
1992	3961.3	592.9	25.6			4579.8	4579.8	618.5
1993	4209.5	593.9	25.6			4828.9	4828.9	619.4
1994	4585.4	594.8	25.6			5205.7	5205.7	620.3
1995	5137.5	595.0	25.6			5758.0	5758.0	620.5
1996	4888.6	486.9	25.6			5401.1	5401.1	512.5
1997	5093.7	351.9	25.6			5471.1	5471.1	377.4
1998	4908.6	216.8	25.6			5151.0	5151.0	242.4
1999	5651.0	81.8	25.6			5758.4	5758.4	107.3
2000	4580.2	54.8	25.6			4660.5	4660.5	80.3
2001	4586.2	43.8	25.6			4655.6	4655.6	69.4
2002	4578.7	30.1	25.6			4634.3	4634.3	55.7
2003	4301.9	16.4	25.6			4343.9	4343.9	42.0
2004	4571.4	2.7	25.6			4599.7	4599.7	28.3
2005	4332.3	0.0	25.6			4357.8	4357.8	25.6
2006	5299.3	0.0	25.6			5324.9	5324.9	25.6
2007	4928.4	0.0	25.6			4954.0	4954.0	25.6

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

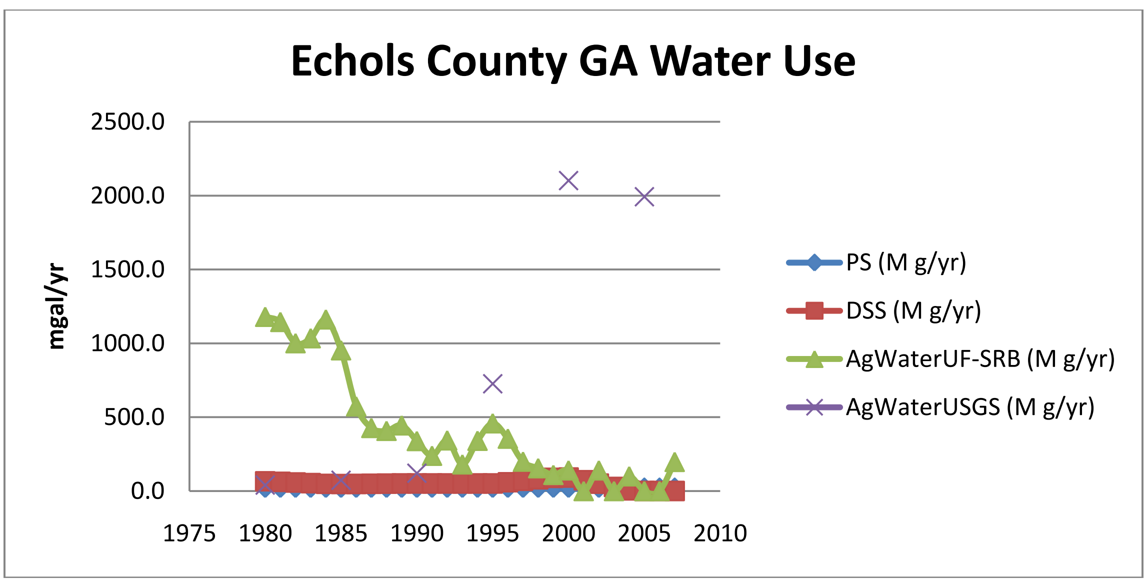


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Echols Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	1180.6	65.7	21.9			1268.2	1268.2	87.6
1981	1145.7	62.1	21.9			1229.6	1229.6	84.0
1982	1001.7	57.5	21.9			1081.0	1081.0	79.4
1983	1035.4	52.9	21.9			1110.2	1110.2	74.8
1984	1162.9	48.4	21.9			1233.2	1233.2	70.3
1985	953.7	47.5	21.9			1023.1	1023.1	69.4
1986	573.7	48.2	21.9			643.7	643.7	70.1
1987	427.6	49.1	21.9			498.6	498.6	71.0
1988	408.0	50.0	21.9			479.9	479.9	71.9
1989	445.1	50.9	21.9			518.0	518.0	72.8
1990	339.1	51.1	21.9			412.1	412.1	73.0
1991	239.4	51.1	21.9			312.4	312.4	73.0
1992	343.5	51.1	21.9			416.5	416.5	73.0
1993	180.8	51.1	21.9			253.8	253.8	73.0
1994	340.9	51.1	21.9			413.9	413.9	73.0
1995	459.1	51.1	21.9			532.1	532.1	73.0
1996	355.1	59.1	21.9			436.1	436.1	81.0
1997	199.5	69.2	21.9			290.5	290.5	91.1
1998	155.0	79.2	21.9			256.1	256.1	101.1
1999	109.7	89.2	21.9			220.9	220.9	111.1
2000	140.4	91.3	21.9			253.5	253.5	113.2
2001	0.0	73.0	21.9			94.9	94.9	94.9
2002	140.4	50.2	21.9			212.5	212.5	72.1
2003	0.0	27.4	21.9			49.3	49.3	49.3
2004	100.3	4.6	21.9			126.7	126.7	26.5
2005	0.0	0.0	21.9			21.9	21.9	21.9
2006	0.0	0.0	21.9			21.9	21.9	21.9
2007	197.5	0.0	21.9			219.4	219.4	21.9

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

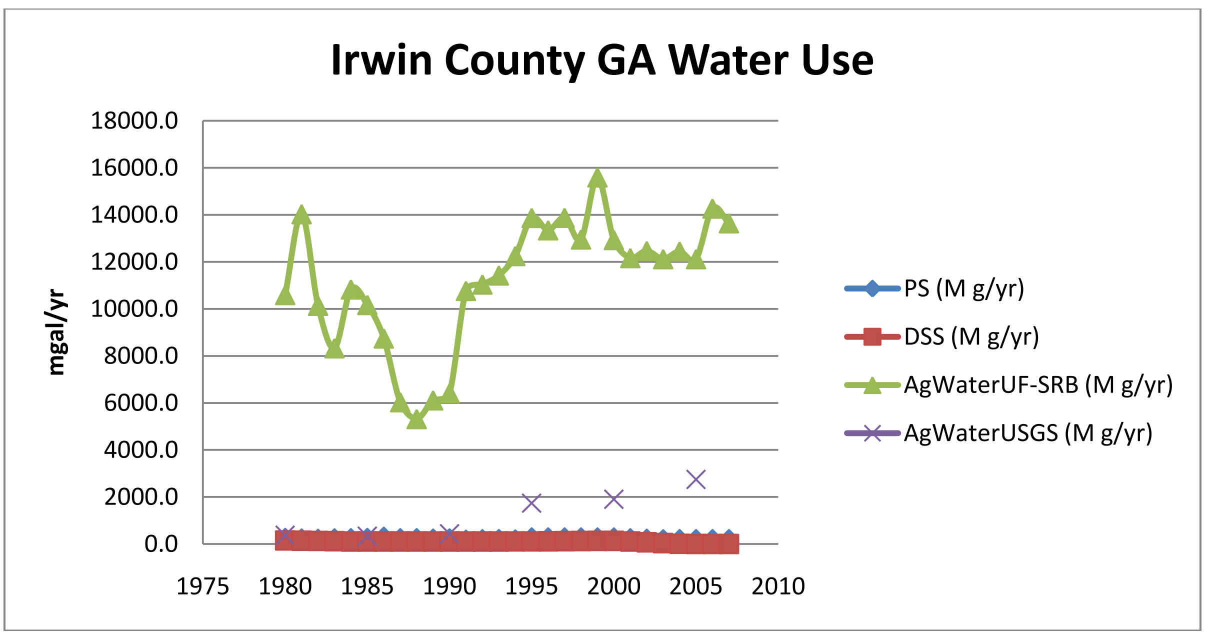


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Irwin Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	10595.6	149.7	255.5			11000.7	11000.7	405.2
1981	14033.4	140.9	230.3			14404.6	14404.6	371.2
1982	10138.4	129.9	218.3			10486.6	10486.6	348.2
1983	8332.2	119.0	238.3			8689.5	8689.5	357.3
1984	10831.7	108.0	242.7			11182.5	11182.5	350.8
1985	10172.6	105.9	255.5			10534.0	10534.0	361.4
1986	8749.0	105.9	307.0			9161.8	9161.8	412.8
1987	6037.2	105.9	244.2			6387.2	6387.2	350.0
1988	5321.0	105.9	245.6			5672.5	5672.5	351.5
1989	6116.4	105.9	227.4			6449.6	6449.6	333.2
1990	6414.6	105.9	233.6			6754.0	6754.0	339.5
1991	10769.4	106.6	179.6			11055.6	11055.6	286.2
1992	11041.0	107.5	201.8			11350.3	11350.3	309.3
1993	11425.4	108.4	206.6			11740.4	11740.4	315.0
1994	12253.9	109.3	192.0			12555.2	12555.2	301.3
1995	13874.3	109.5	277.4			14261.2	14261.2	386.9
1996	13347.5	114.6	277.4			13739.5	13739.5	392.0
1997	13879.0	121.0	277.4			14277.4	14277.4	398.4
1998	12956.8	127.4	277.4			13361.5	13361.5	404.8
1999	15597.7	133.8	275.7			16007.2	16007.2	409.5
2000	12935.5	135.1	273.8			13344.3	13344.3	408.8
2001	12167.6	108.0	242.8			12518.5	12518.5	350.9
2002	12468.0	74.3	220.4			12762.6	12762.6	294.7
2003	12121.2	40.5	198.8			12360.5	12360.5	239.3
2004	12446.4	6.8	204.4			12657.6	12657.6	211.2
2005	12119.2	0.0	204.4			12323.6	12323.6	204.4
2006	14272.4	0.0	204.4			14476.8	14476.8	204.4
2007	13645.8	0.0	204.4			13850.2	13850.2	204.4

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

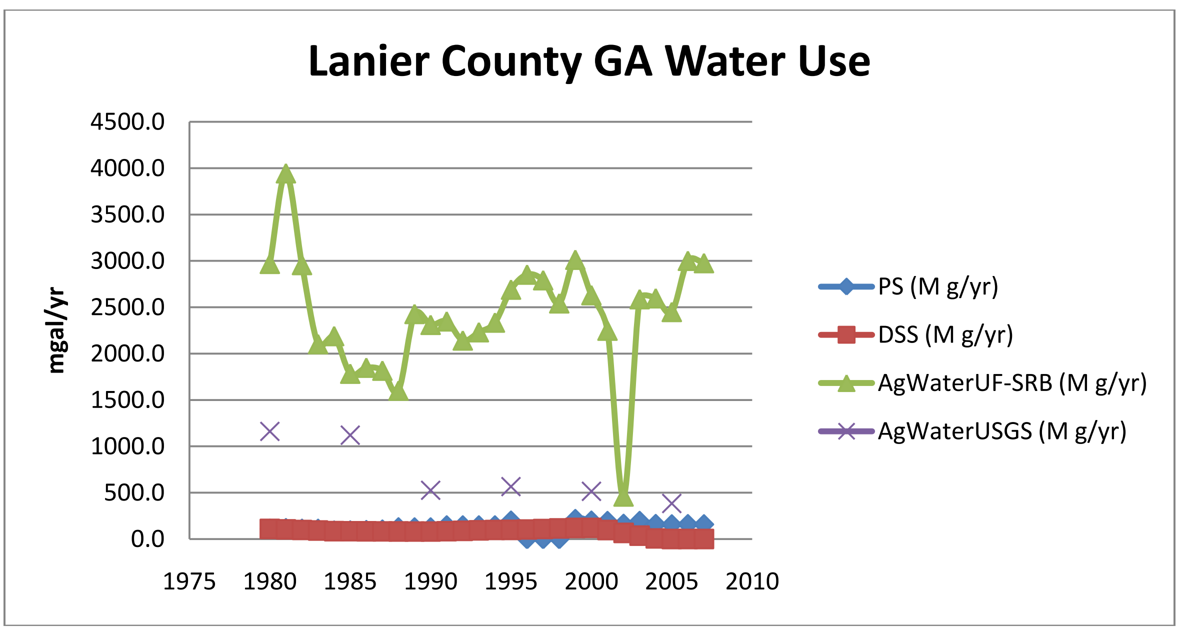


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Lanier Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	2968.8	109.5	109.5			3187.8	3187.8	219.0
1981	3945.8	104.4	115.7			4165.9	4165.9	220.1
1982	2956.2	98.0	109.5			3163.7	3163.7	207.5
1983	2102.6	91.6	109.1			2303.3	2303.3	200.8
1984	2189.8	85.2	90.2			2365.2	2365.2	175.4
1985	1784.0	84.0	91.3			1959.2	1959.2	175.2
1986	1848.8	83.2	95.3			2027.3	2027.3	178.5
1987	1816.8	82.3	100.7			1999.9	1999.9	183.0
1988	1600.9	81.4	124.8			1807.2	1807.2	206.2
1989	2428.2	80.5	124.1			2632.8	2632.8	204.6
1990	2311.0	80.3	124.1			2515.4	2515.4	204.4
1991	2348.4	84.0	146.0			2578.3	2578.3	230.0
1992	2142.2	88.5	146.0			2376.7	2376.7	234.5
1993	2231.1	93.1	146.0			2470.2	2470.2	239.1
1994	2335.3	97.6	146.0			2579.0	2579.0	243.6
1995	2690.8	98.6	197.1			2986.5	2986.5	295.7
1996	2852.9	102.9	0.0			2955.9	2955.9	102.9
1997	2792.2	108.4	0.0			2900.6	2900.6	108.4
1998	2542.8	113.9	0.0			2656.7	2656.7	113.9
1999	3013.2	119.4	214.3			3346.8	3346.8	333.6
2000	2631.0	120.5	197.1			2948.5	2948.5	317.6
2001	2248.3	96.4	193.0			2537.6	2537.6	289.3
2002	459.2	66.2	162.5			687.9	687.9	228.7
2003	2587.6	36.1	193.7			2817.4	2817.4	229.8
2004	2597.4	6.0	160.4			2763.9	2763.9	166.5
2005	2449.9	0.0	157.1			2607.0	2607.0	157.1
2006	3001.8	0.0	159.1			3160.9	3160.9	159.1
2007	2976.8	0.0	157.6			3134.4	3134.4	157.6

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

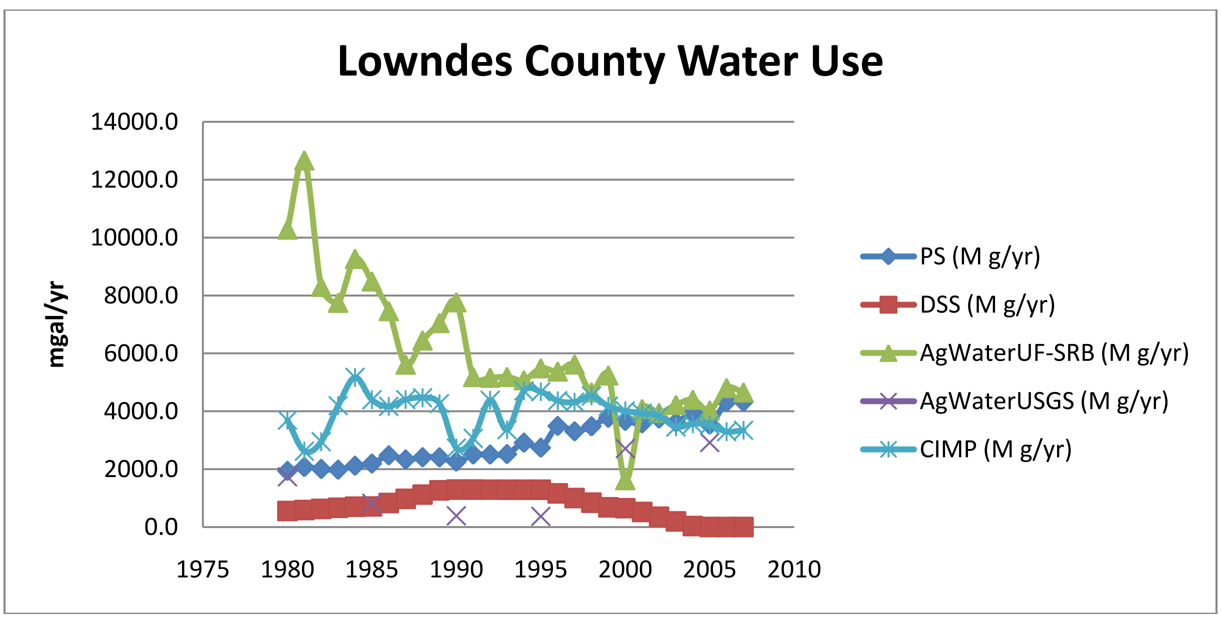


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Lowndes Groundwater withdrawal (M gall/Year)

Yea r	Agric from Crops	Dom Self Sup	Pub Sup p	Com m Ind Pow	Recrea t	TGW	CGW	CGWNA
1980	10282.8	554.8	1934.5	3692.0		16464.1	16464.1	6181.3
1981	12675.0	586.2	2071.0	2622.2		17954.3	17954.3	5279.4
1982	8303.0	625.4	2002.8	2947.0		13878.2	13878.2	5575.2
1983	7752.3	664.7	1977.6	4193.9		14588.4	14588.4	6836.1
1984	9269.7	703.9	2114.4	5168.8		17256.9	17256.9	7987.1
1985	8490.6	711.8	2190.0	4397.2		15789.5	15789.5	7298.9
1986	7464.7	828.6	2473.6	4168.7		14935.5	14935.5	7470.8
1987	5616.6	974.6	2329.8	4403.7		13324.6	13324.6	7708.1
1988	6450.9	1120.6	2407.2	4466.5		14445.2	14445.2	7994.2
1989	7053.4	1266.6	2402.8	4266.5		14989.3	14989.3	7935.8
1990	7771.3	1295.8	2255.7	2727.3		14050.1	14050.1	6278.7
1991	5186.4	1294.3	2501.7	3064.2		12046.6	12046.6	6860.2
1992	5163.0	1292.5	2501.7	4382.9		13340.1	13340.1	8177.1
1993	5190.5	1290.6	2517.4	3360.2		12358.7	12358.7	7168.2
1994	5076.0	1288.8	2911.2	4706.3		13982.3	13982.3	8906.4
1995	5488.6	1288.5	2737.5	4675.3		14189.8	14189.8	8701.2
1996	5377.6	1160.7	3488.7	4365.2		14392.2	14392.2	9014.6
1997	5621.4	1001.0	3303.8	4311.9		14238.1	14238.1	8616.8
1998	4656.5	841.3	3475.9	4528.0		13501.8	13501.8	8845.3
1999	5242.4	681.6	3769.7	4173.6		13867.3	13867.3	8625.0
2000	1623.1	649.7	3661.0	4012.9		9946.6	9946.6	8323.5
2001	4080.9	519.8	3576.8	3934.5		12111.9	12111.9	8031.0
2002	3946.6	357.3	3746.2	3831.4		11881.6	11881.6	7935.0
2003	4221.5	194.9	3611.6	3457.9		11485.9	11485.9	7264.5
2004	4401.0	32.5	3947.8	3563.7		11945.0	11945.0	7544.0
2005	4030.5	0.0	3533.3	3532.2		11096.0	11096.0	7065.5
2006	4807.9	0.0	4316.0	3296.3		12420.1	12420.1	7612.3
2007	4652.9	0.0	4322.9	3342.2		12318.1	12318.1	7665.2

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

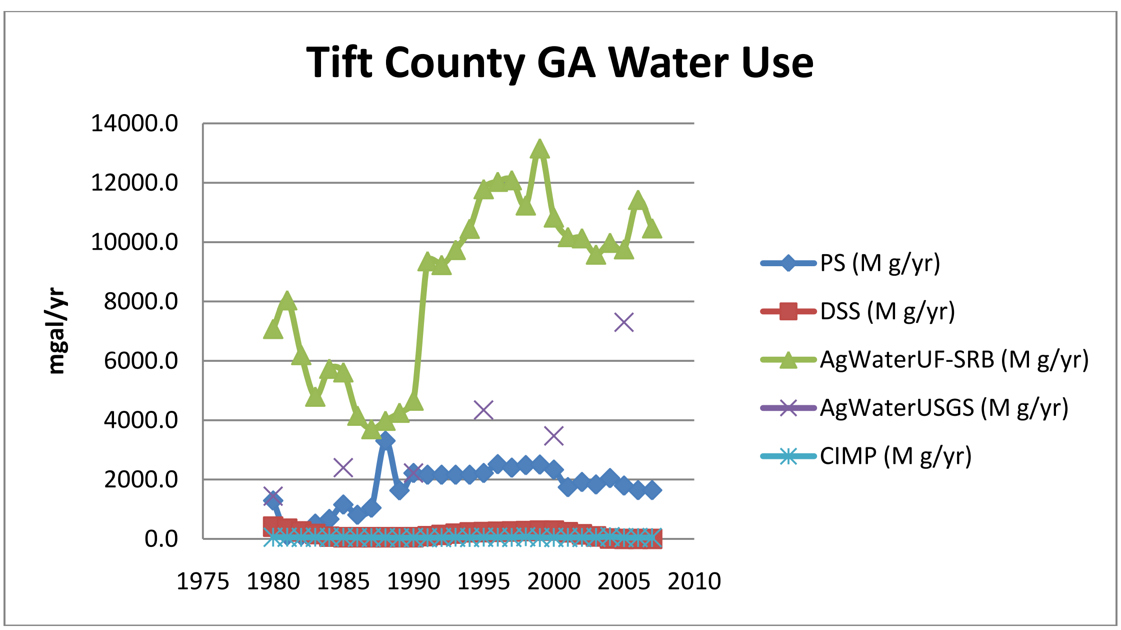


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Tift Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	8378	412.5	1288.5	59.1		10137.7	10137.7	1760.0
1981	9178	341.6	109.5	58.4		9687.6	9687.6	509.5
1982	6834	253.1	113.2	50.7		7251.1	7251.1	417.0
1983	5097	164.6	509.5	57.3		5828.7	5828.7	731.5
1984	5444	76.1	665.8	54.0		6240.4	6240.4	795.9
1985	6046	58.4	1153.4	59.5		7317.7	7317.7	1271.3
1986	4295	58.4	807.7	49.6		5211.0	5211.0	915.8
1987	4941	58.4	1047.2	49.3		6095.5	6095.5	1154.9
1988	4702	58.4	3304.3	49.6		8114.8	8114.8	3412.4
1989	4300	58.4	1631.6	38.0		6028.3	6028.3	1727.9
1990	4589	58.4	2215.6	48.2		6911.2	6911.2	2322.1
1991	9673	92.7	2157.2	42.3		11965.3	11965.3	2292.2
1992	9417	135.6	2157.2	48.2		11757.9	11757.9	2340.9
1993	9685	178.5	2157.2	56.2		12077.2	12077.2	2391.8
1994	10294	221.4	2157.2	47.5		12720.1	12720.1	2426.0
1995	11073	230.0	2215.6	56.2		13574.7	13574.7	2501.7
1996	11051	240.2	2513.2	55.7		13860.6	13860.6	2809.2
1997	11262	252.9	2395.9	53.4		13964.4	13964.4	2702.2
1998	10501	265.7	2482.7	70.3		13320.1	13320.1	2818.8
1999	12355	278.5	2499.6	48.0		15180.8	15180.8	2826.1
2000	9981	281.1	2328.7	51.3		12641.6	12641.6	2661.0
2001	9352	224.8	1740.5	52.7		11369.8	11369.8	2018.1
2002	9636	154.6	1912.7	53.5		11756.3	11756.3	2120.8
2003	9281	84.3	1829.2	54.9		11249.7	11249.7	1968.4
2004	9570	14.1	2044.8	75.9		11704.4	11704.4	2134.8
2005	9132	0.0	1792.5	43.8		10968.0	10968.0	1836.3
2006	11146	0.0	1638.4	47.5		12832.1	12832.1	1685.8
2007	10392	0.0	1639.2	45.6		12077.0	12077.0	1684.8

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

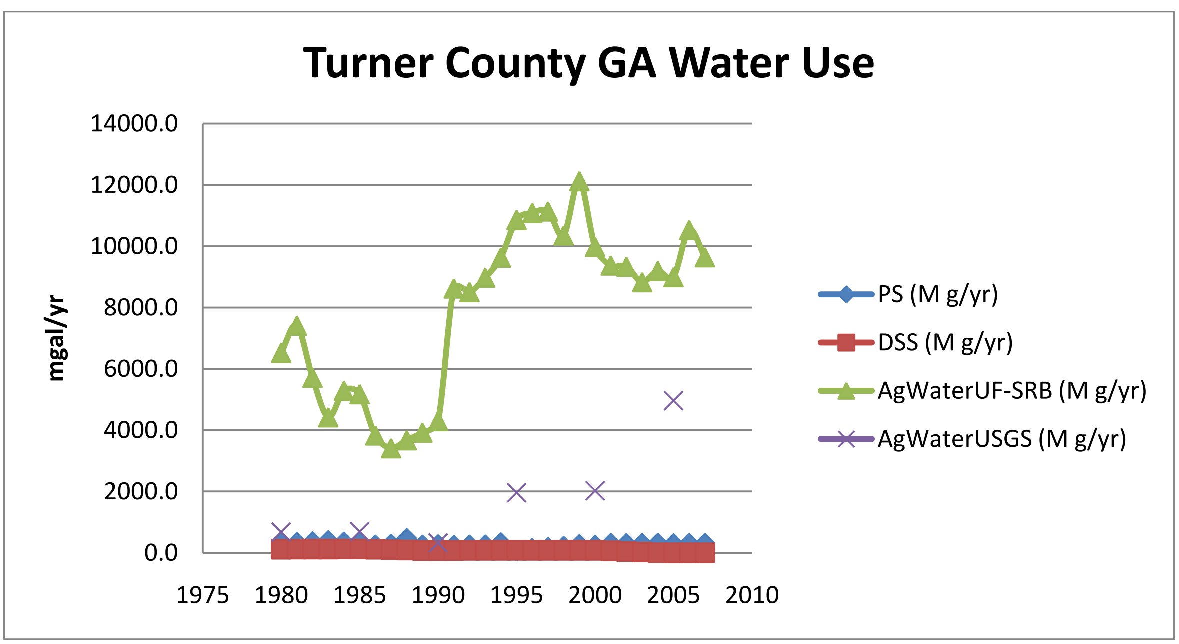


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Turner Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	6522.8	116.8	368.7			7008.2	7008.2	485.5
1981	7412.0	118.3	346.4			7876.6	7876.6	464.6
1982	5712.3	120.1	367.9			6200.3	6200.3	488.0
1983	4422.2	121.9	403.7			4947.8	4947.8	525.6
1984	5287.0	123.7	358.8			5769.6	5769.6	482.5
1985	5176.2	124.1	368.7			5668.9	5668.9	492.8
1986	3830.5	113.9	260.6			4205.0	4205.0	374.5
1987	3413.3	101.1	292.0			3806.4	3806.4	393.1
1988	3673.3	88.3	473.8			4235.4	4235.4	562.1
1989	3922.8	75.6	260.2			4258.6	4258.6	335.8
1990	4297.7	73.0	270.1			4640.8	4640.8	343.1
1991	8624.7	74.5	249.7			8948.8	8948.8	324.1
1992	8507.7	76.3	259.2			8843.1	8843.1	335.4
1993	8974.2	78.1	263.2			9315.5	9315.5	341.3
1994	9630.6	79.9	335.1			10045.6	10045.6	415.0
1995	10860.0	80.3	51.1			10991.4	10991.4	131.4
1996	11088.8	80.3	151.4			11320.5	11320.5	231.7
1997	11137.5	80.3	181.9			11399.7	11399.7	262.2
1998	10355.1	80.3	217.1			10652.5	10652.5	297.4
1999	12125.7	80.3	276.0			12482.0	12482.0	356.3
2000	9981.6	80.3	251.9			10313.7	10313.7	332.2
2001	9374.6	64.2	314.4			9753.3	9753.3	378.6
2002	9336.8	44.2	311.2			9692.2	9692.2	355.4
2003	8830.1	24.1	310.1			9164.3	9164.3	334.2
2004	9196.1	4.0	319.3			9519.5	9519.5	323.3
2005	8995.5	0.0	304.5			9300.0	9300.0	304.5
2006	10530.0	0.0	310.3			10840.4	10840.4	310.3
2007	9644.4	0.0	315.1			9959.6	9959.6	315.1

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

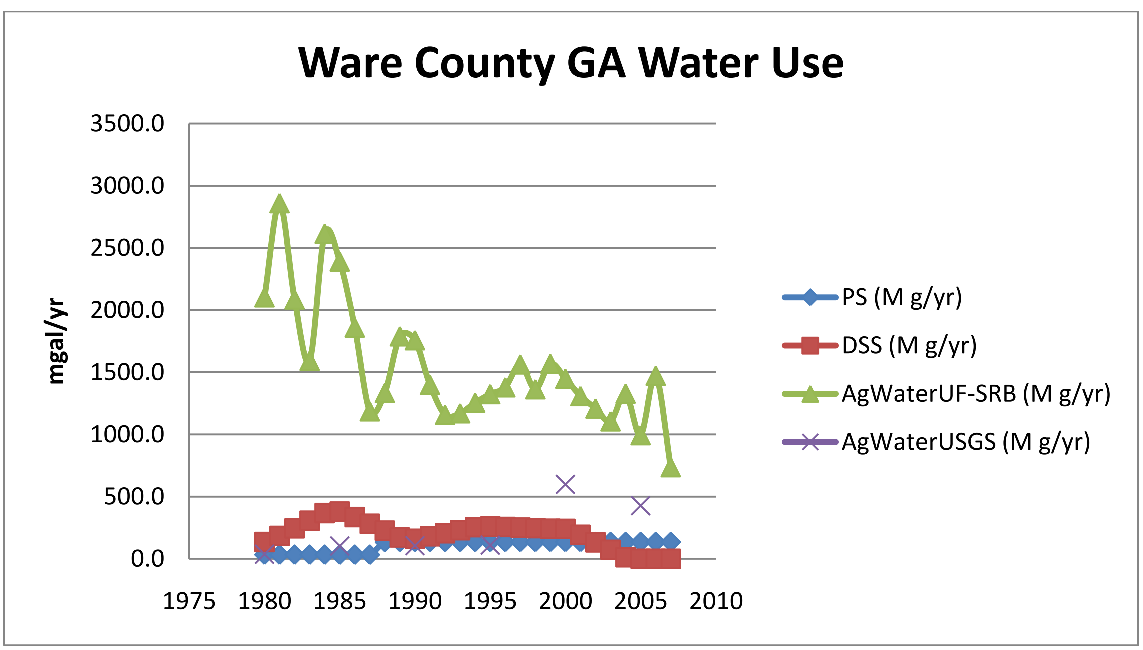


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Ware Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	2103.6	135.1	32.9			2271.5	2271.5	167.9
1981	2860.9	184.0	32.9			3077.7	3077.7	216.8
1982	2086.6	245.1	32.9			2364.5	2364.5	277.9
1983	1593.4	306.2	32.9			1932.5	1932.5	339.1
1984	2615.5	367.4	32.9			3015.7	3015.7	400.2
1985	2391.6	379.6	32.9			2804.1	2804.1	412.5
1986	1860.5	335.8	32.9			2229.2	2229.2	368.7
1987	1186.4	281.1	32.9			1500.3	1500.3	313.9
1988	1334.9	226.3	134.0			1695.2	1695.2	360.3
1989	1790.0	171.6	135.1			2096.6	2096.6	306.6
1990	1758.1	160.6	135.1			2053.7	2053.7	295.7
1991	1399.0	180.3	135.1			1714.4	1714.4	315.4
1992	1158.3	204.9	135.1			1498.3	1498.3	340.0
1993	1170.6	229.6	135.1			1535.2	1535.2	364.6
1994	1255.4	254.2	135.1			1644.6	1644.6	389.3
1995	1325.0	259.2	135.1			1719.2	1719.2	394.2
1996	1379.8	255.5	135.1			1770.4	1770.4	390.6
1997	1564.0	250.9	135.1			1950.0	1950.0	386.0
1998	1364.2	246.4	135.1			1745.6	1745.6	381.4
1999	1569.8	241.8	135.1			1946.7	1946.7	376.9
2000	1449.5	240.9	135.1			1825.5	1825.5	376.0
2001	1309.5	192.7	135.1			1637.2	1637.2	327.8
2002	1209.3	132.5	135.1			1476.8	1476.8	267.5
2003	1105.7	72.3	135.1			1313.0	1313.0	207.3
2004	1329.3	12.0	135.1			1476.4	1476.4	147.1
2005	994.5	0.0	135.1			1129.6	1129.6	135.1
2006	1473.4	0.0	135.1			1608.4	1608.4	135.1
2007	736.9	0.0	135.1			872.0	872.0	135.1

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

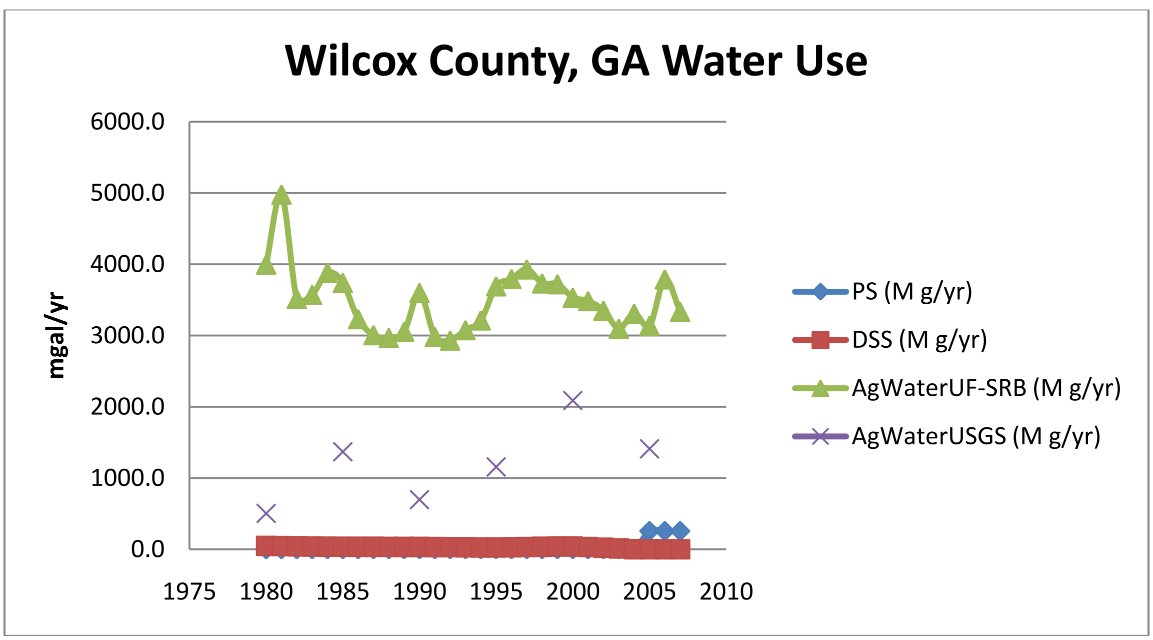


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Wilcox Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	3998.7	0.13				3998.8	3999	0.13
1981	4979.2	0.12				4979.3	4979	0.12
1982	3515.9	0.12				3516.0	3516	0.12
1983	3572.1	0.11				3572.2	3572	0.11
1984	3884.3	0.10				3884.4	3884	0.10
1985	3740.0	0.10				3740.1	3740	0.10
1986	3232.5	0.10				3232.5	3233	0.10
1987	3007.6	0.10				3007.7	3008	0.10
1988	2967.7	0.09				2967.8	2968	0.09
1989	3057.9	0.09				3058.0	3058	0.09
1990	3600.4	0.09				3600.5	3600	0.09
1991	2984.2	0.09				2984.3	2984	0.09
1992	2932.5	0.08				2932.6	2933	0.08
1993	3077.8	0.08				3077.9	3078	0.08
1994	3214.7	0.07				3214.8	3215	0.07
1995	3692.9	0.07				3692.9	3693	0.07
1996	3794.9	0.08				3795.0	3795	0.08
1997	3930.6	0.09				3930.7	3931	0.09
1998	3733.9	0.10				3734.0	3734	0.10
1999	3722.0	0.11				3722.1	3722	0.11
2000	3534.3	0.11				3534.4	3534	0.11
2001	3485.4	0.09				3485.5	3486	0.09
2002	3351.2	0.06				3351.3	3351	0.06
2003	3099.8	0.03				3099.8	3100	0.03
2004	3310.3	0.01				3310.3	3310	0.01
2005	3138.2	0.00	255.5			3393.7	3138	0.00
2006	3790.8	0.00	255.5			4046.3	3791	0.00
2007	3335.3	0.00	255.5			3590.8	3335	0.00

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag

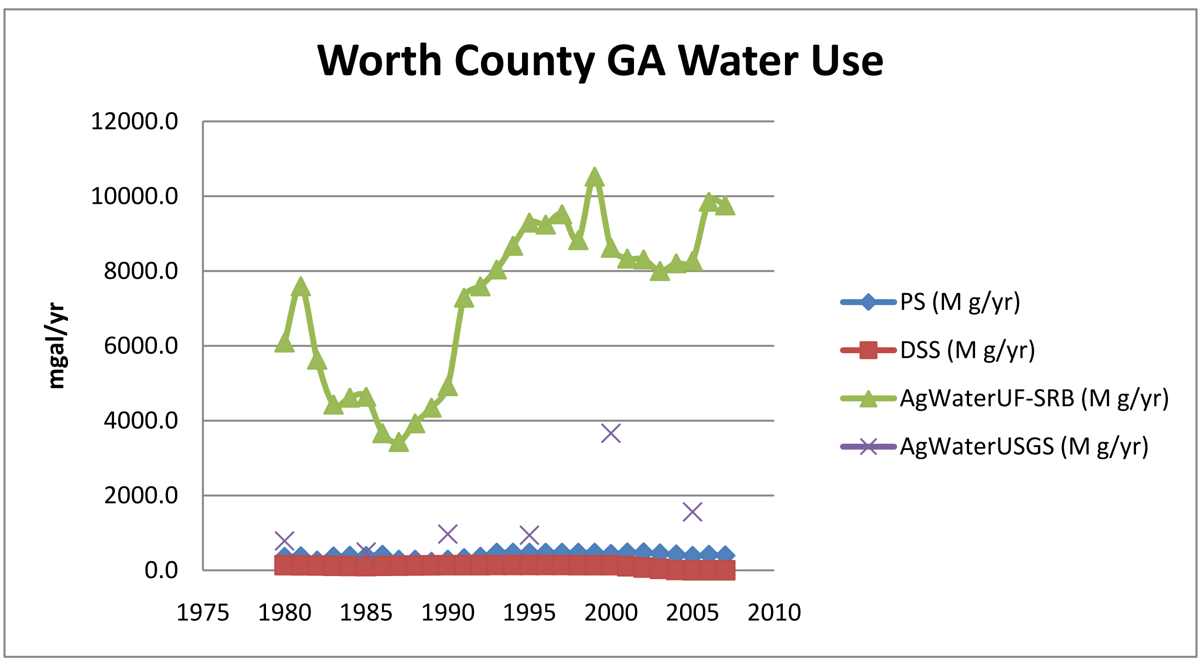


Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Worth Groundwater withdrawal (M gall/Year)

Year	Agric from Crops	Dom Self Sup	Pub Supp	Comm Ind Pow	Recreat	TGW	CGW	CGWNA
1980	6095.8	138.7	354.1			6588.5	6588.5	492.8
1981	7599.7	133.6	371.6			8104.8	8104.8	505.2
1982	5634.9	127.2	257.7			6019.8	6019.8	384.9
1983	4435.7	120.8	366.5			4923.0	4923.0	487.3
1984	4621.2	114.4	385.8			5121.4	5121.4	500.2
1985	4645.0	113.2	379.6			5137.7	5137.7	492.8
1986	3670.1	117.5	411.0			4198.6	4198.6	528.5
1987	3435.5	123.0	279.2			3837.7	3837.7	402.2
1988	3934.3	128.5	279.2			4342.0	4342.0	407.7
1989	4353.8	134.0	223.4			4711.1	4711.1	357.3
1990	4927.8	135.1	281.1			5343.9	5343.9	416.1
1991	7294.5	136.5	321.2			7752.2	7752.2	457.7
1992	7596.8	138.3	357.7			8092.8	8092.8	496.0
1993	8048.0	140.2	467.2			8655.4	8655.4	607.4
1994	8682.0	142.0	467.2			9291.2	9291.2	609.2
1995	9301.2	142.4	467.2			9910.7	9910.7	609.6
1996	9248.6	140.9	467.2			9856.7	9856.7	608.1
1997	9523.3	139.1	467.2			10129.5	10129.5	606.3
1998	8833.9	137.2	467.2			9438.3	9438.3	604.4
1999	10529.5	135.4	467.2			11132.1	11132.1	602.6
2000	8628.8	135.1	434.4			9198.2	9198.2	569.4
2001	8339.6	108.0	473.7			8921.3	8921.3	581.7
2002	8317.2	74.3	477.7			8869.2	8869.2	552.0
2003	8007.2	40.5	448.4			8496.1	8496.1	488.9
2004	8213.4	6.8	421.5			8641.7	8641.7	428.3
2005	8276.4	0.0	380.9			8657.3	8657.3	380.9
2006	9859.8	0.0	412.4			10272.2	10272.2	412.4
2007	9762.3	0.0	395.0			10157.3	10157.3	395.0

TGW = total GW withdrawal; CGW = continuous GW withdrawal; CGWNA = continuous GW withdrawal, no ag



Graph of the first 5 water use categories in the table, plus estimated agricultural water use published by USGS 5-year water use reports.

Appendix 17: Groundwater Withdrawal Trends

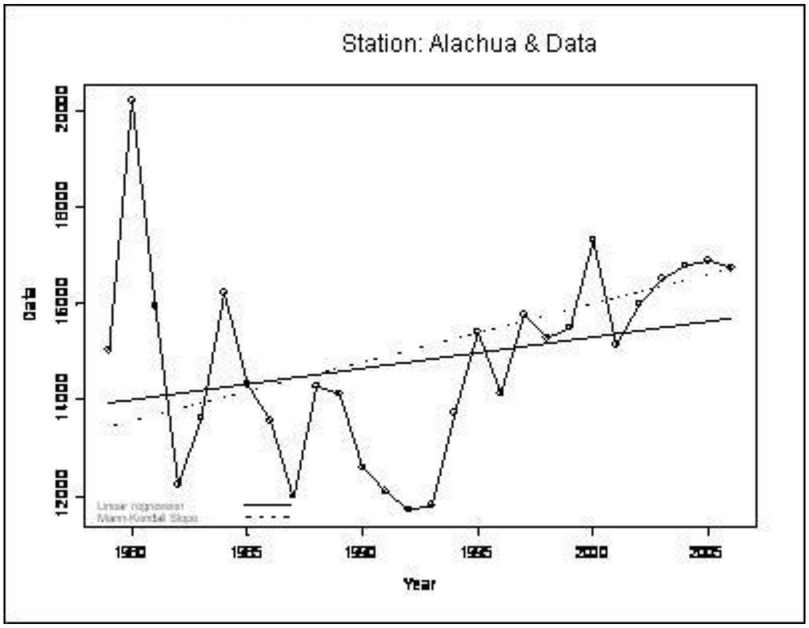
Following is a summary of the trend detection plots of groundwater withdrawal data. Annual ground water withdrawal data in M gall/year were labeled as “data” (y-axes) and plotted against record year (x-axes). Four different time series of the groundwater withdrawal data were used in the trend analysis:

1. Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).
2. Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data. The categories with missing data points were discarded.
3. Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable.
4. Continuous AG water use data (CAG): AG water use only.

The trend plots of these time series are summarized in different sections for Florida and Georgia.

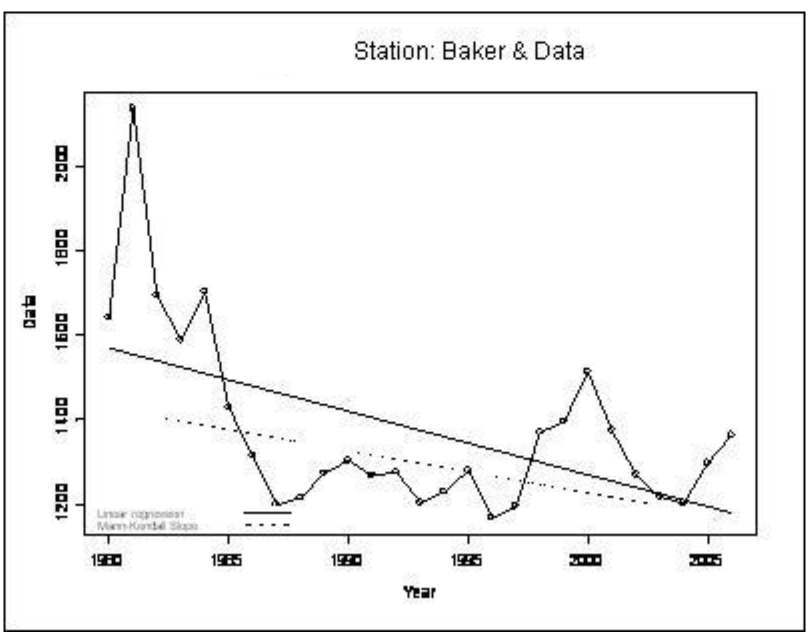
Appendix 17.1 Florida Total Ground Water Withdrawal Trend:

Alachua County, Florida

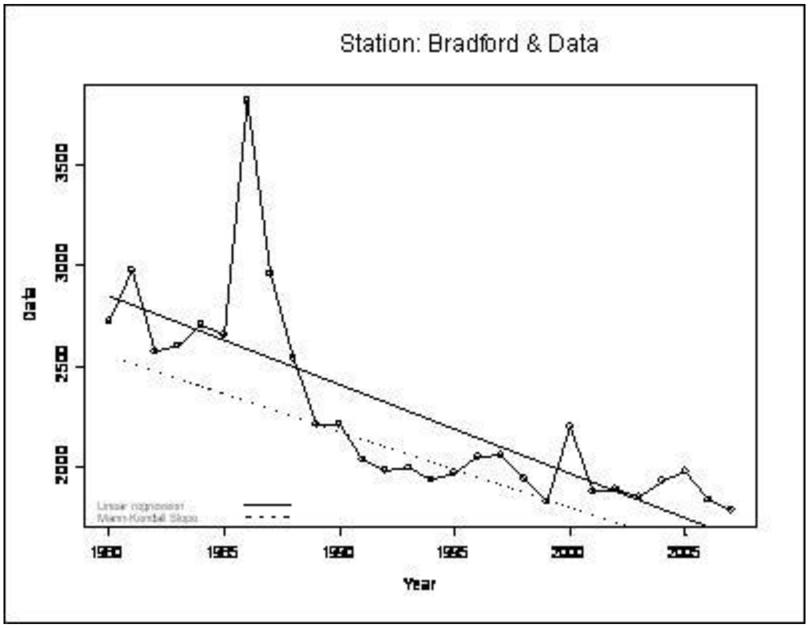


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Baker County, Florida

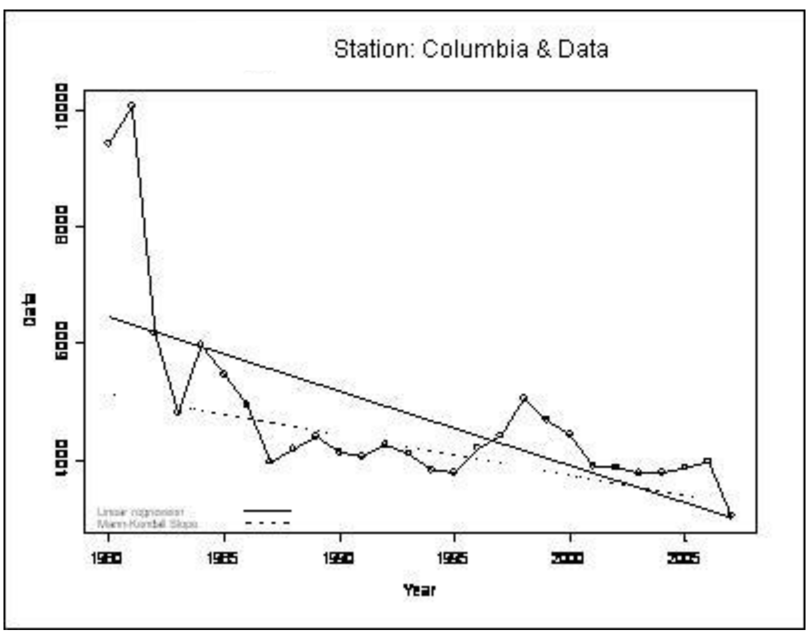


Bradford County, Florida

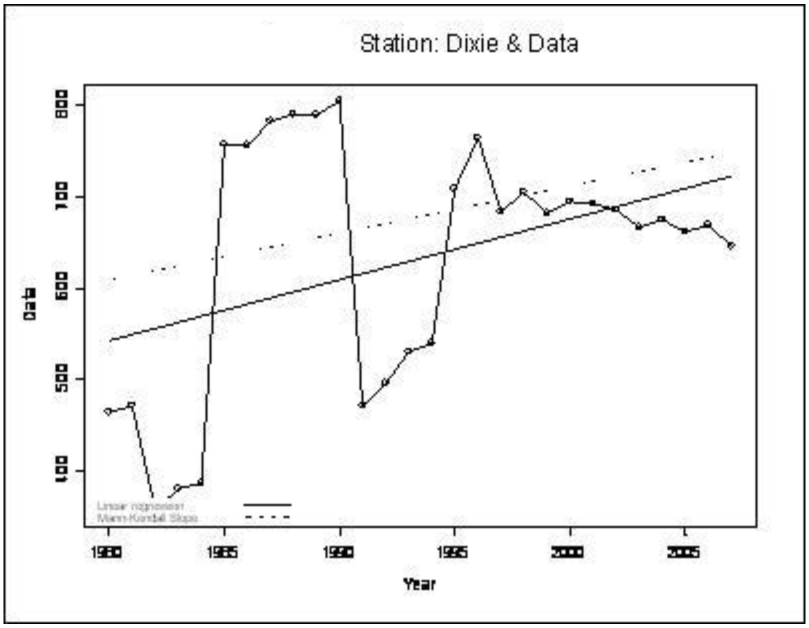


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Columbia County, Florida

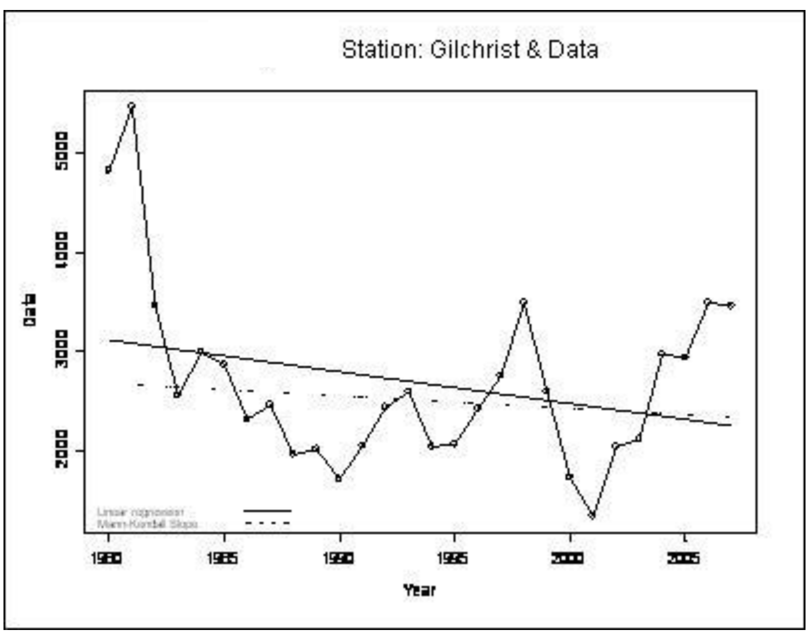


Dixie County, Florida

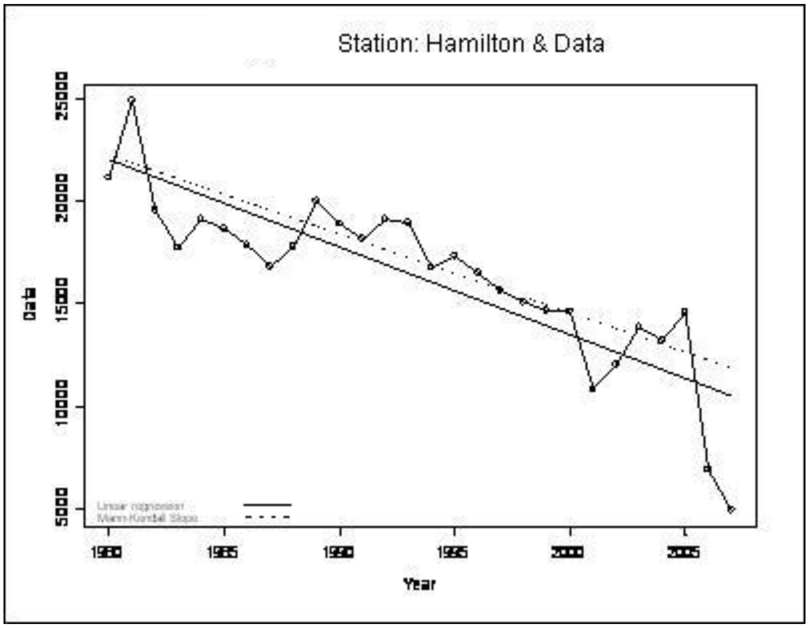


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Gilchrist County, Florida

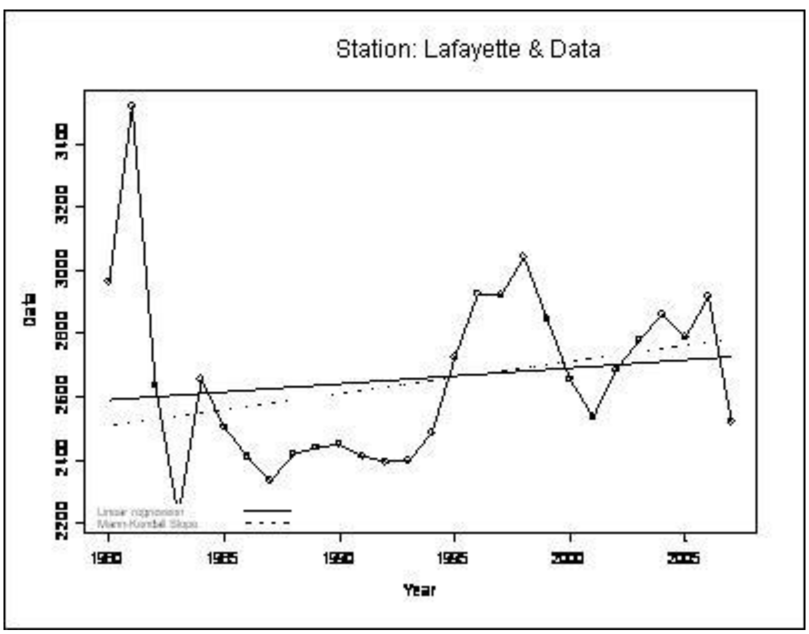


Hamilton County, Florida

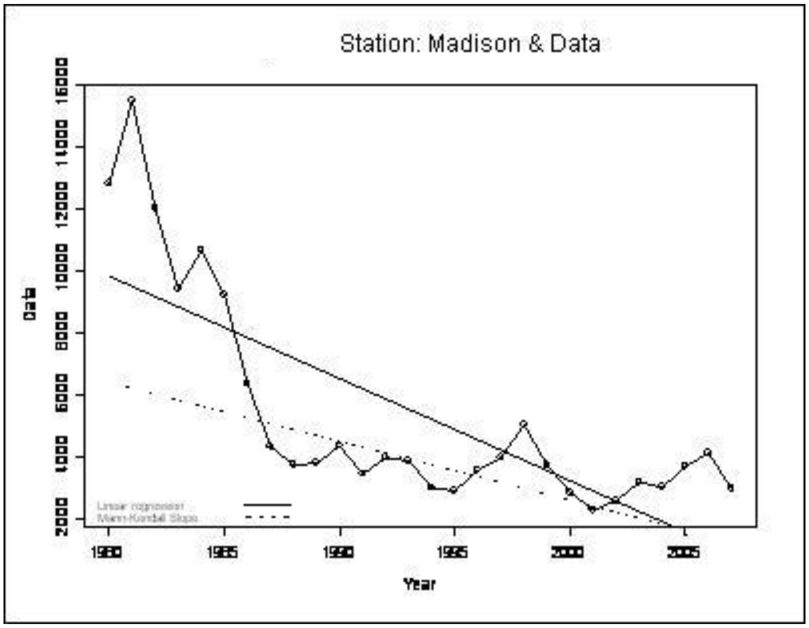


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Lafayette County, Florida

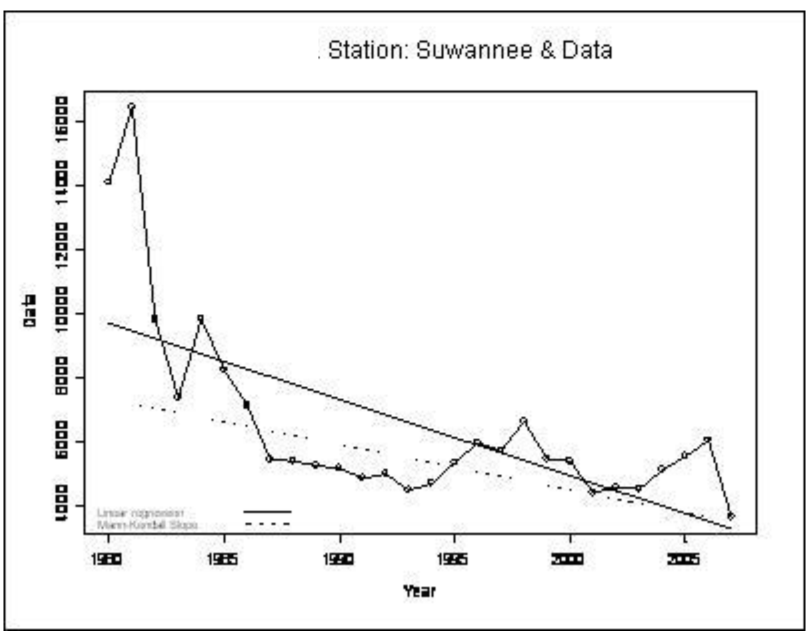


Madison County, Florida

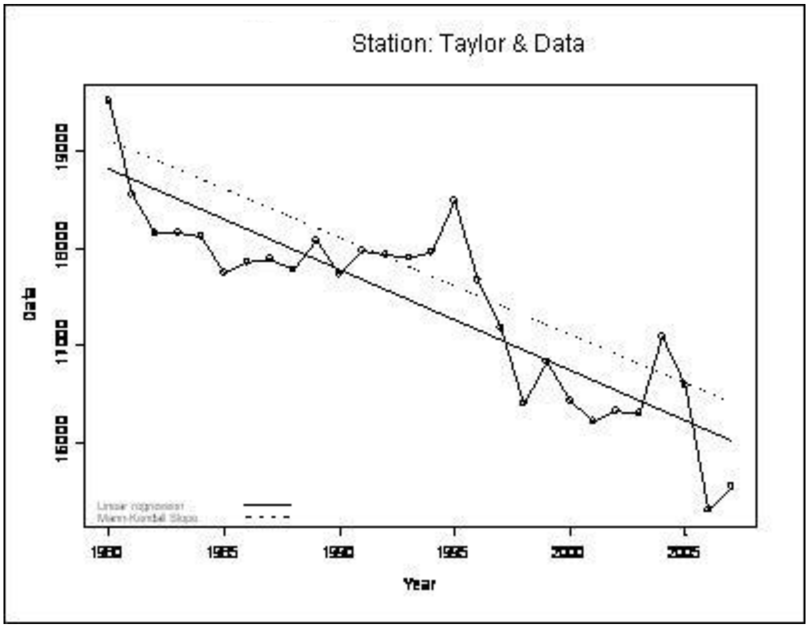


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Suwannee County, Florida

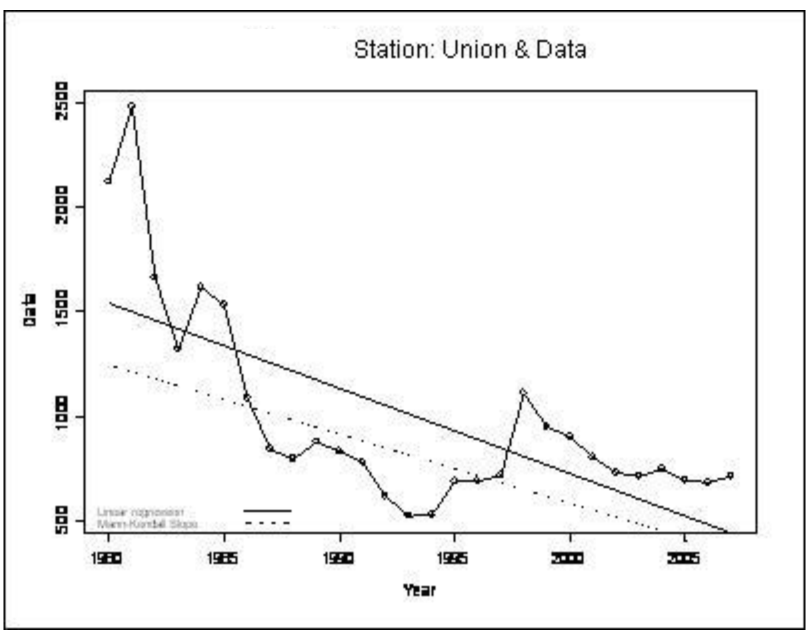


Taylor County, Florida



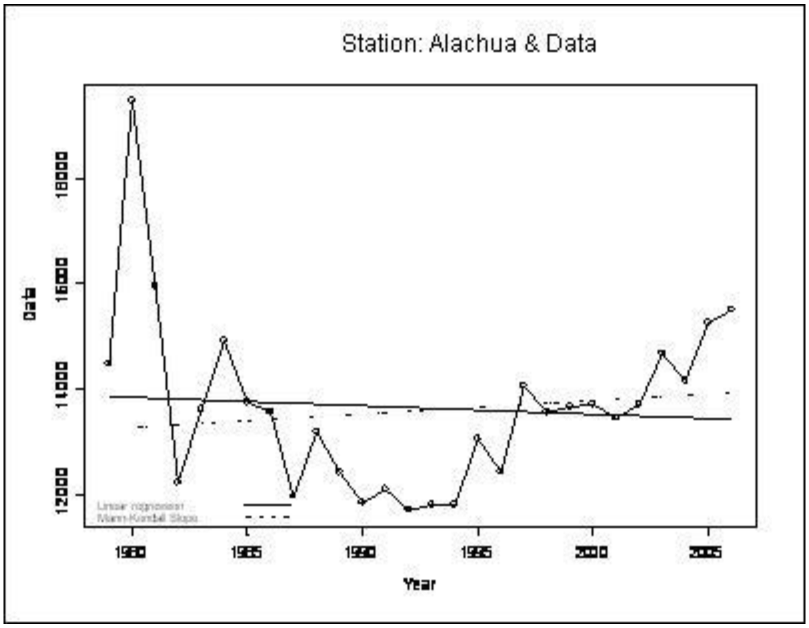
Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Union County, Florida



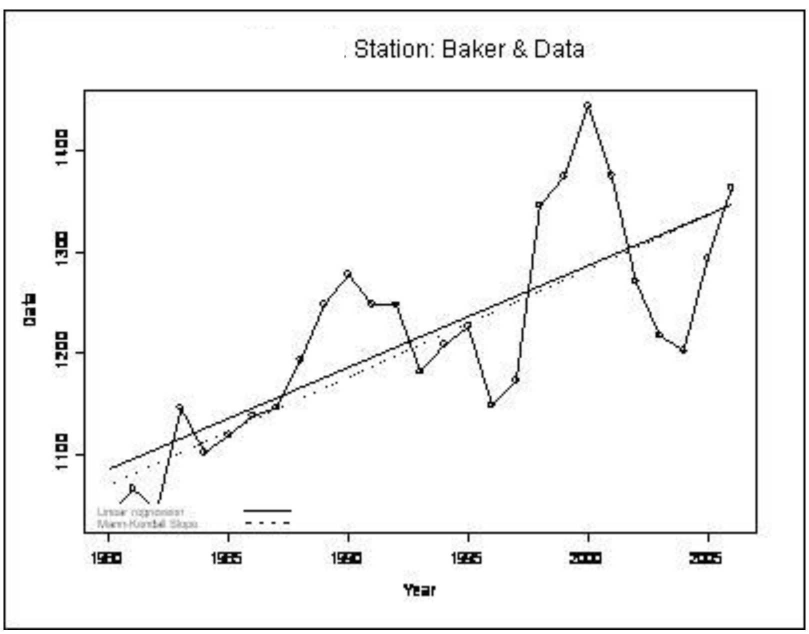
Appendix 17.2 Florida Continuous Ground Water Withdrawal Trend:

Alachua County, Florida

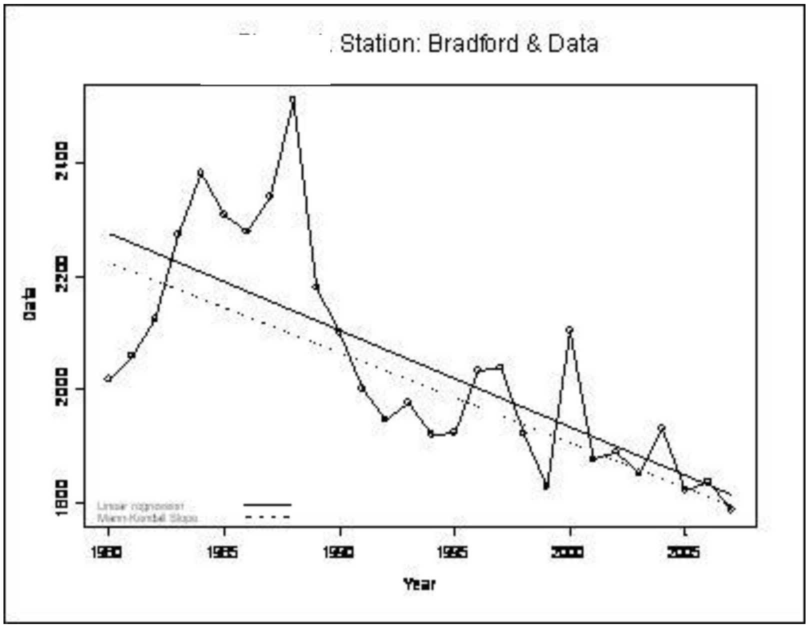


Data = Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data. The categories with missing data points were discarded (M gall/year).

Baker County, Florida

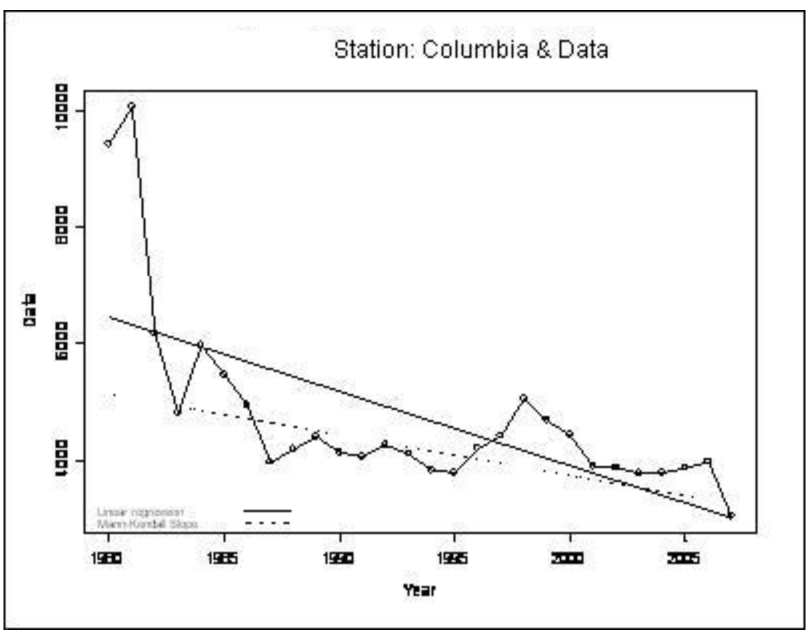


Bradford County, Florida

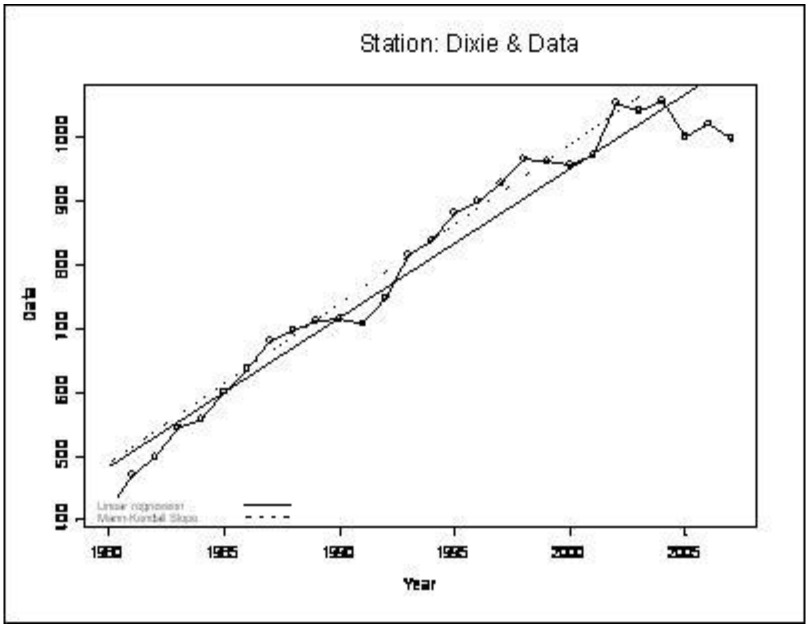


Data = Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data. The categories with missing data points were discarded (M gall/year).

Columbia County, Florida

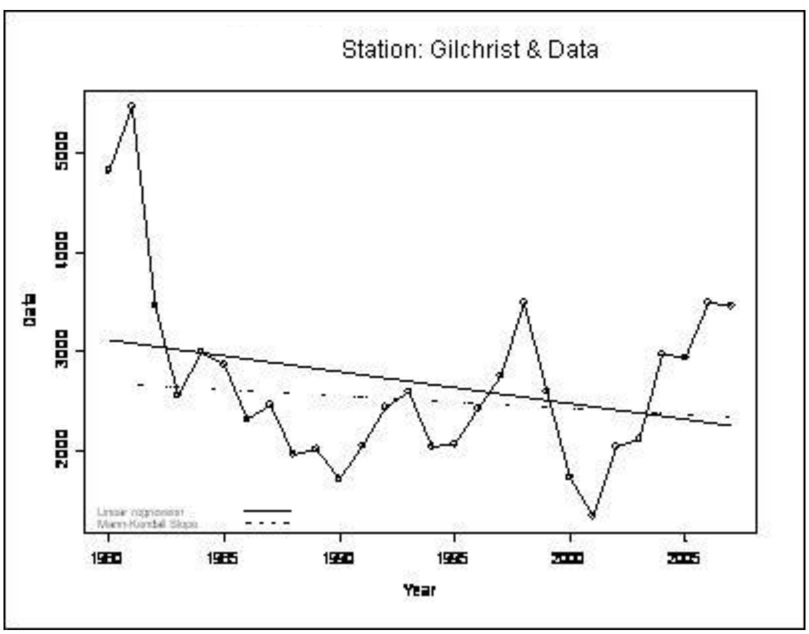


Dixie County, Florida

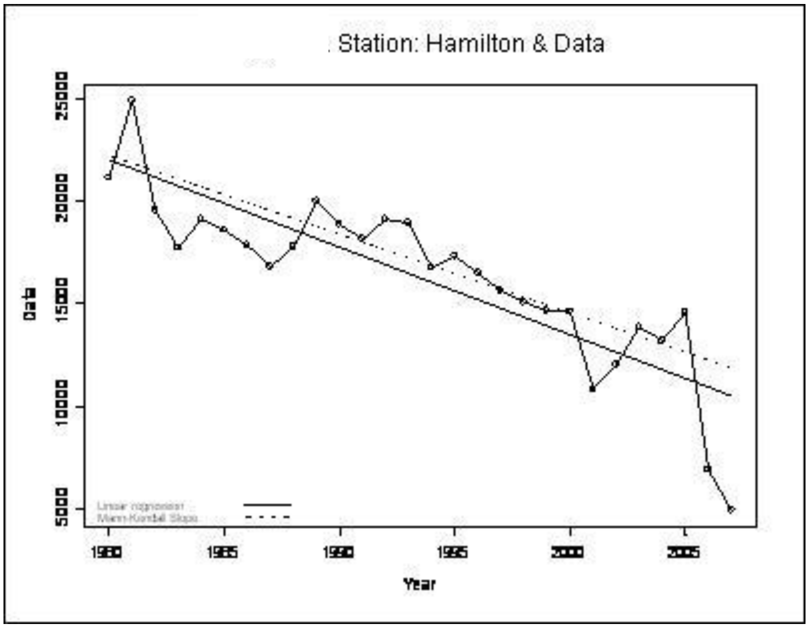


Data = Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data. The categories with missing data points were discarded (M gall/year).

Gilchrist County, Florida

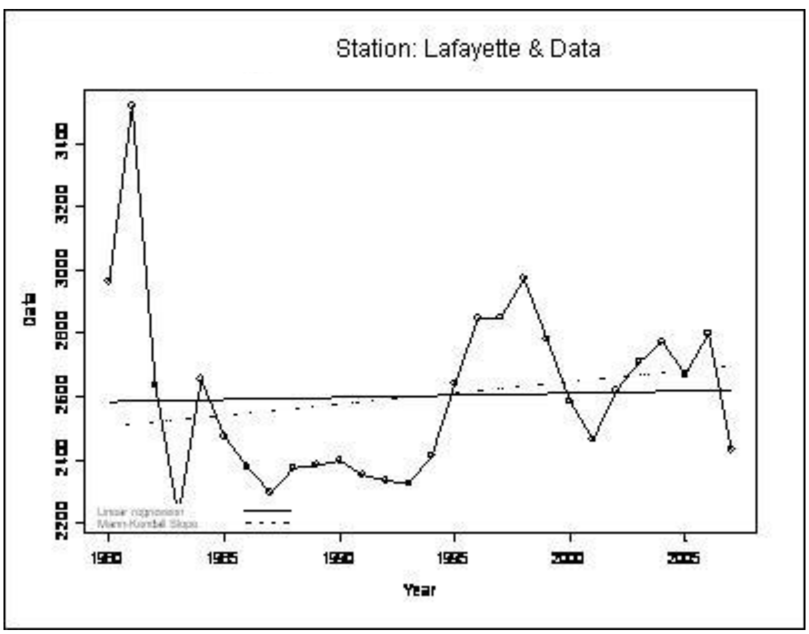


Hamilton County, Florida

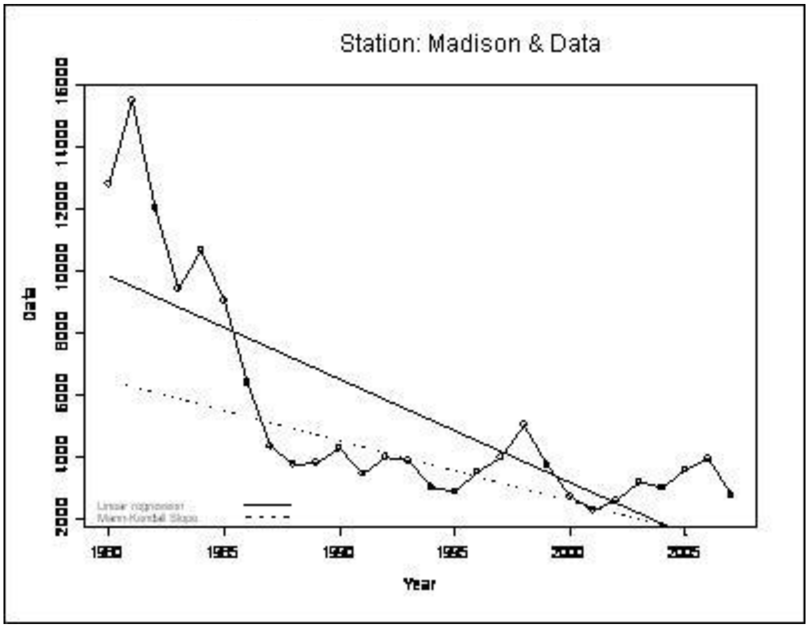


Data = Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data. The categories with missing data points were discarded (M gall/year).

Lafayette County, Florida

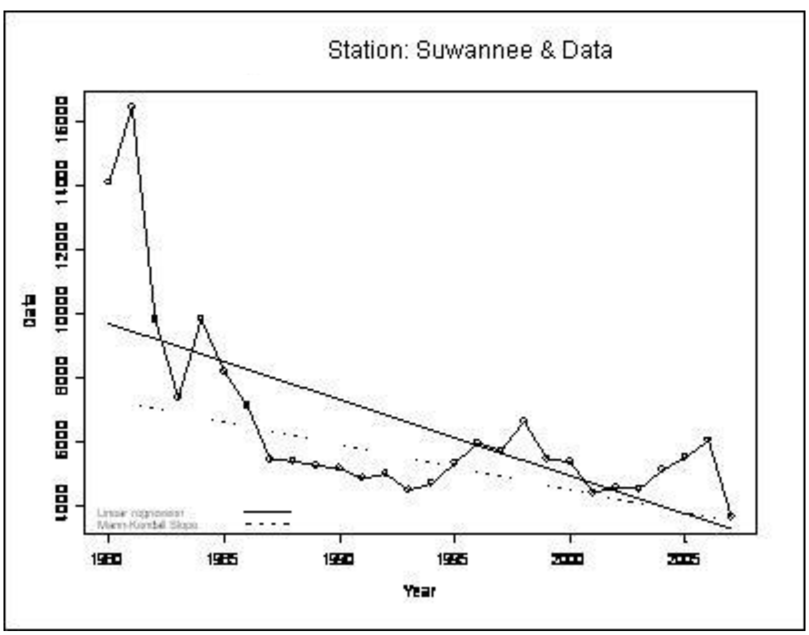


Madison County, Florida

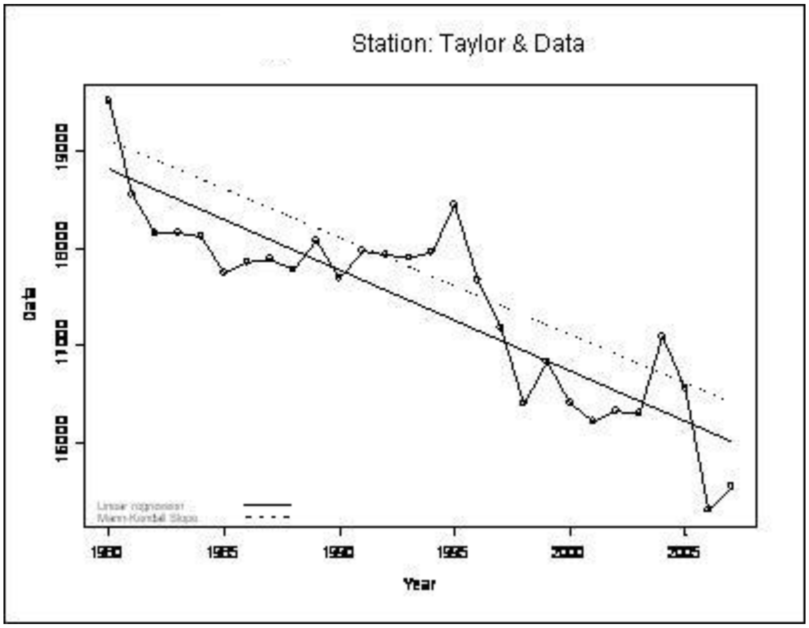


Data = Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data. The categories with missing data points were discarded (M gall/year).

Suwannee County, Florida

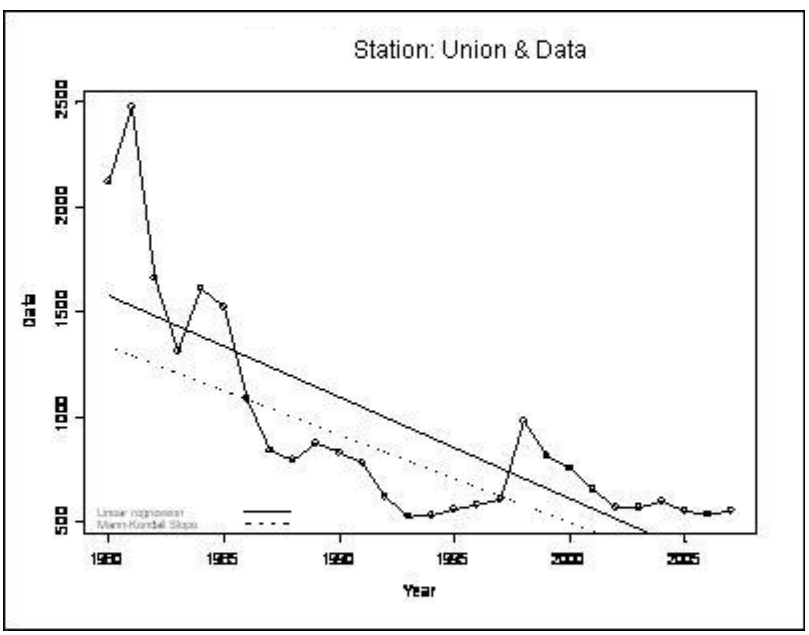


Taylor County, Florida



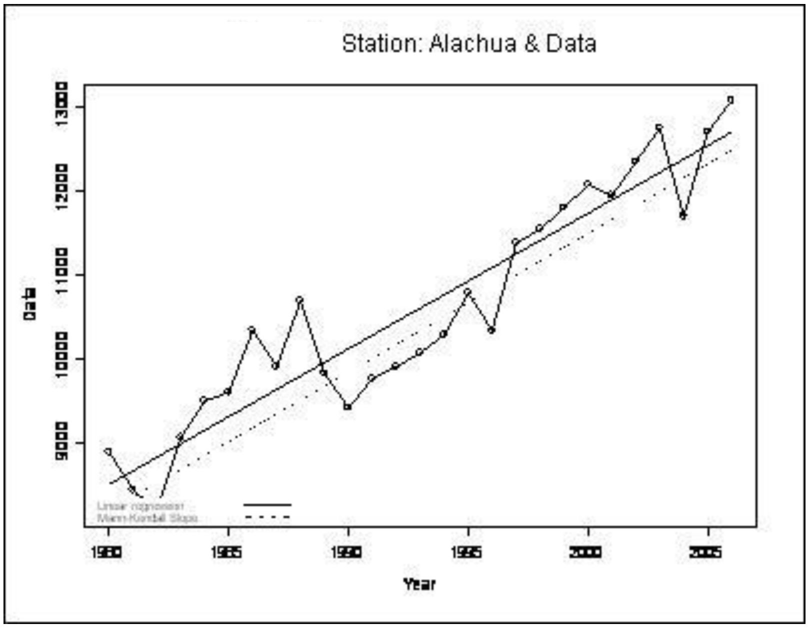
Data = Continuous groundwater withdrawal (CGW): Sum of the water use categories with continuous data. The categories with missing data points were discarded (M gall/year).

Union County, Florida



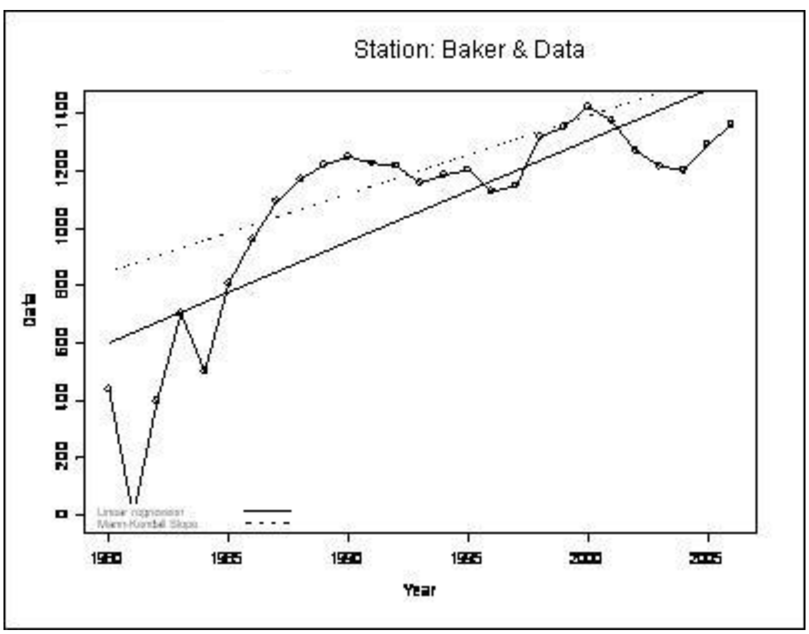
Appendix 17.3 Florida Continuous Ground Water Withdrawal without Agricultural data Trend:

Alachua County, Florida

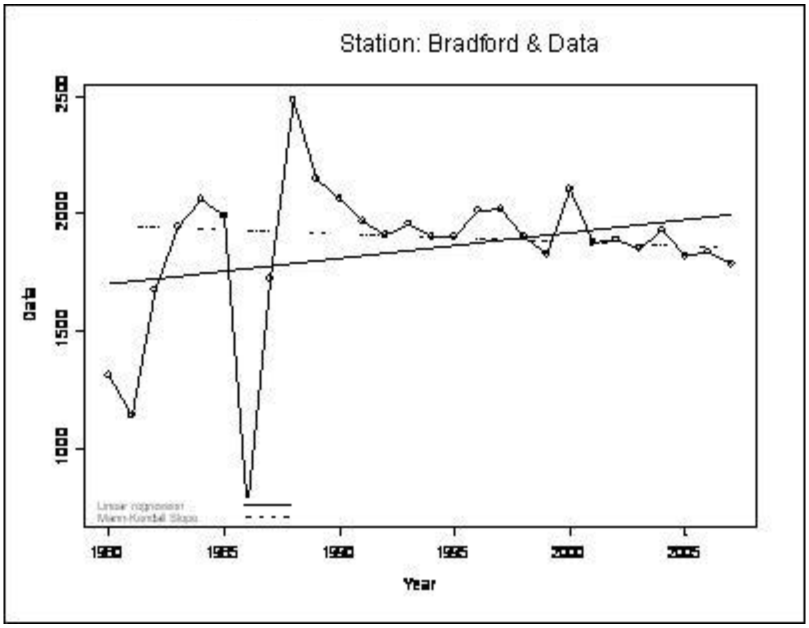


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M gall/yr)

Baker County, Florida

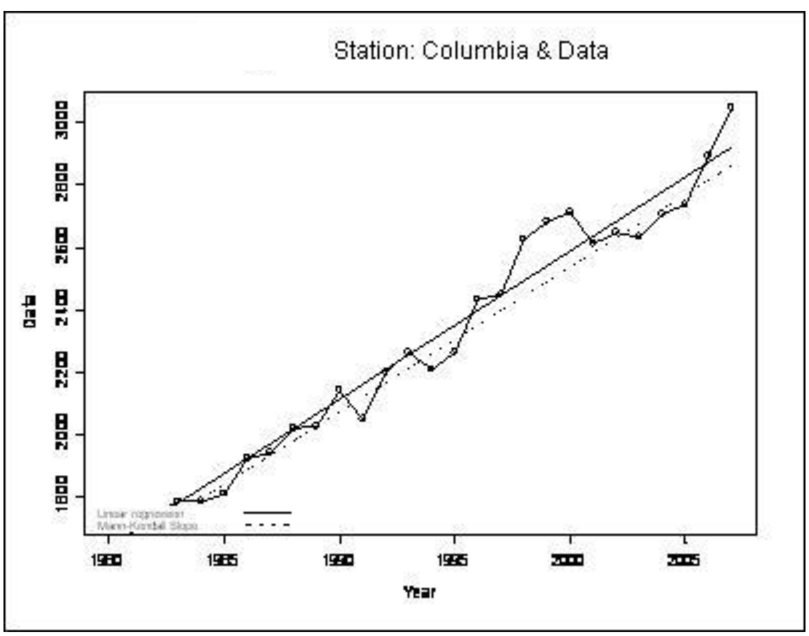


Bradford County, Florida



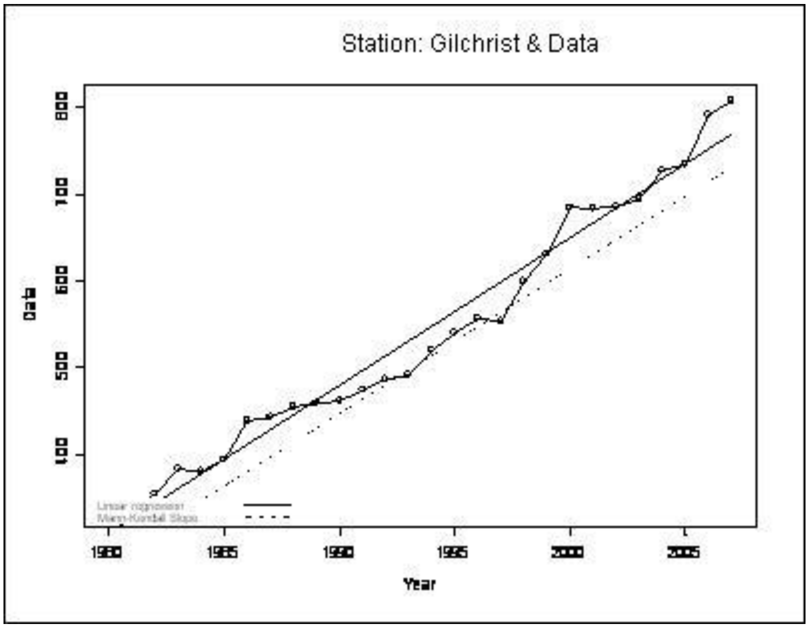
Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M gall/yr)

Columbia County, Florida



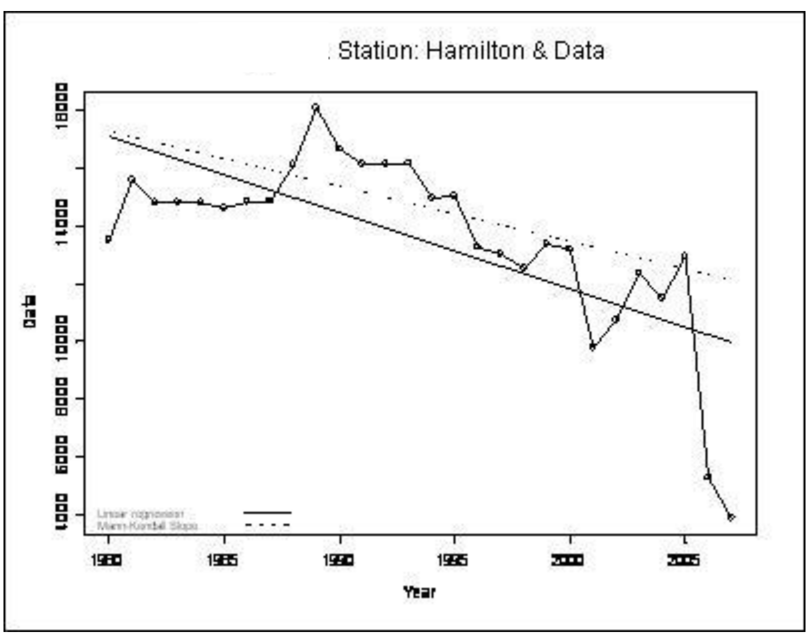
Dixie County, Florida - no Agricultural data

Gilchrist County, Florida

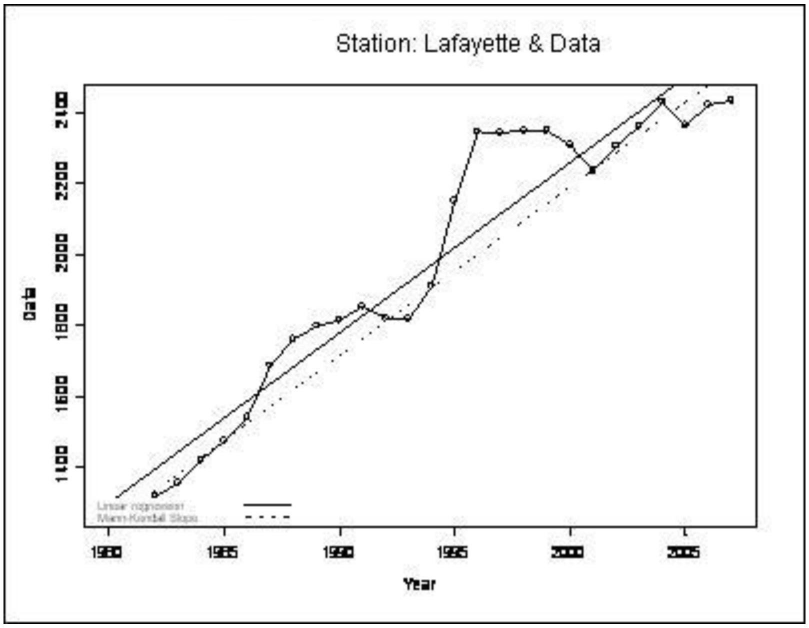


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M gall/yr)

Hamilton County, Florida

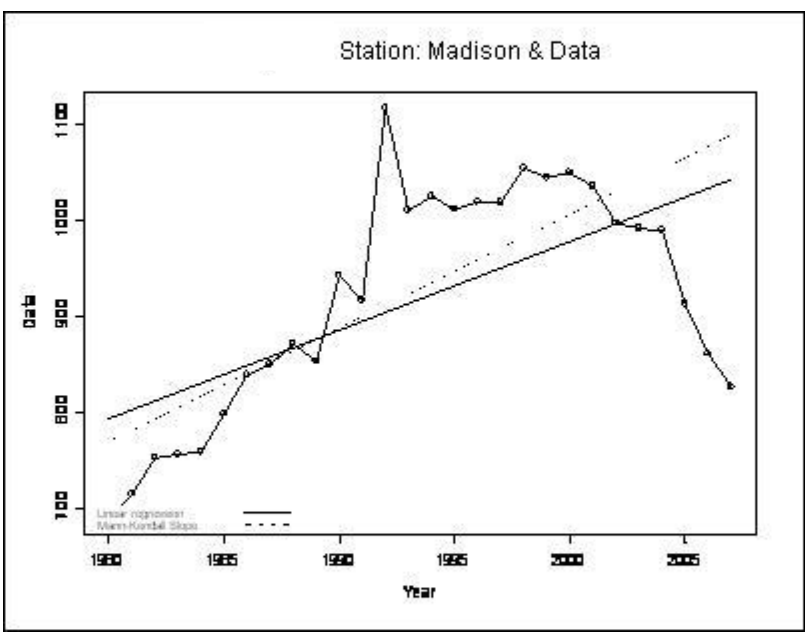


Lafayette County, Florida

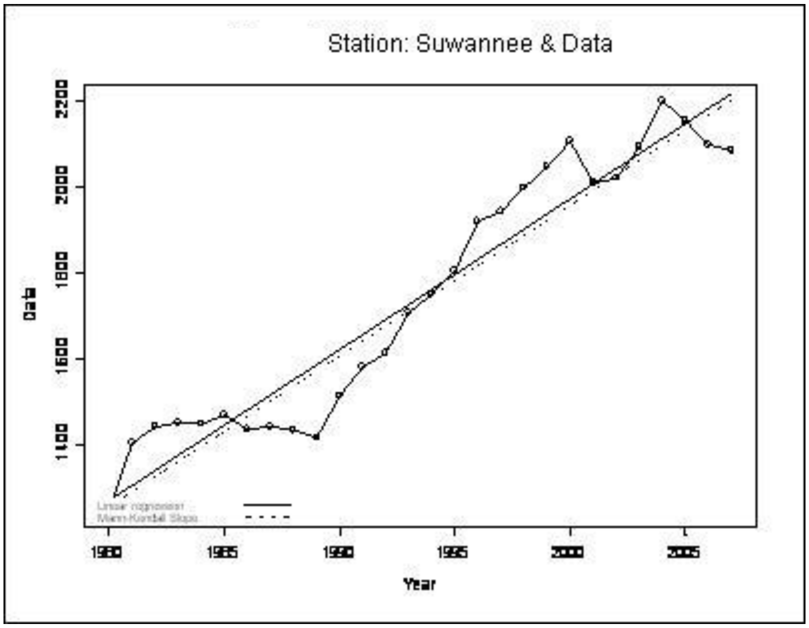


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M gall/yr)

Madison County, Florida



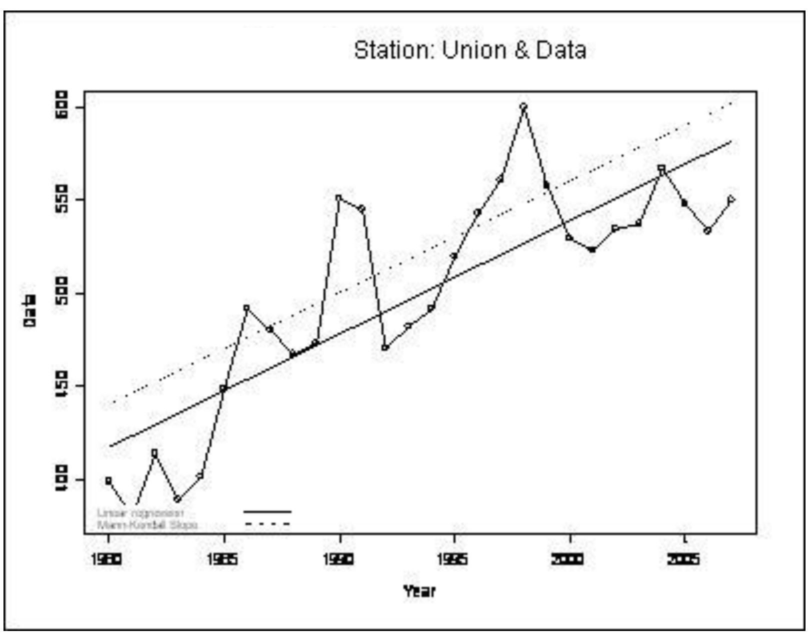
Suwannee County, Florida



Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M gall/yr)

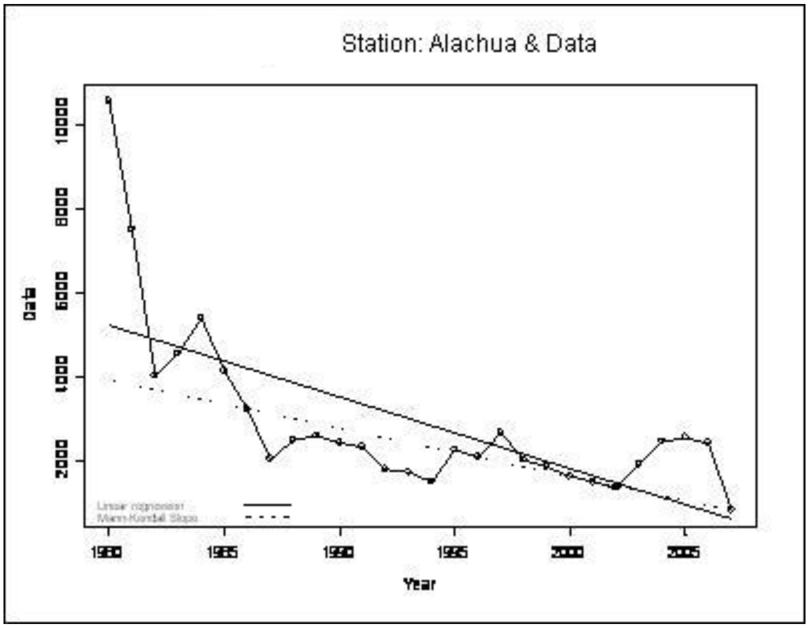
Taylor County, Florida - No Agricultural data

Union County, Florida



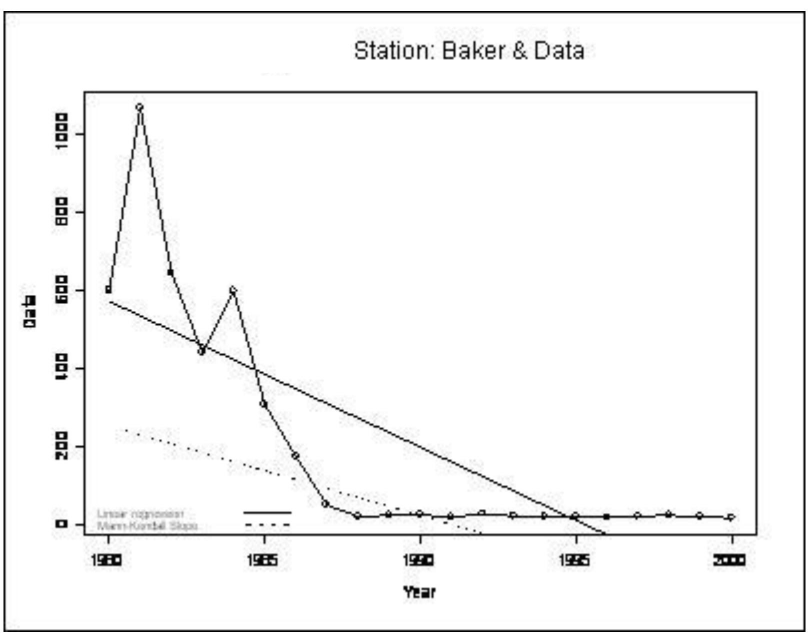
Appendix 17.4 Florida Agricultural Ground Water Withdrawal Trend:

Alachua County, Florida

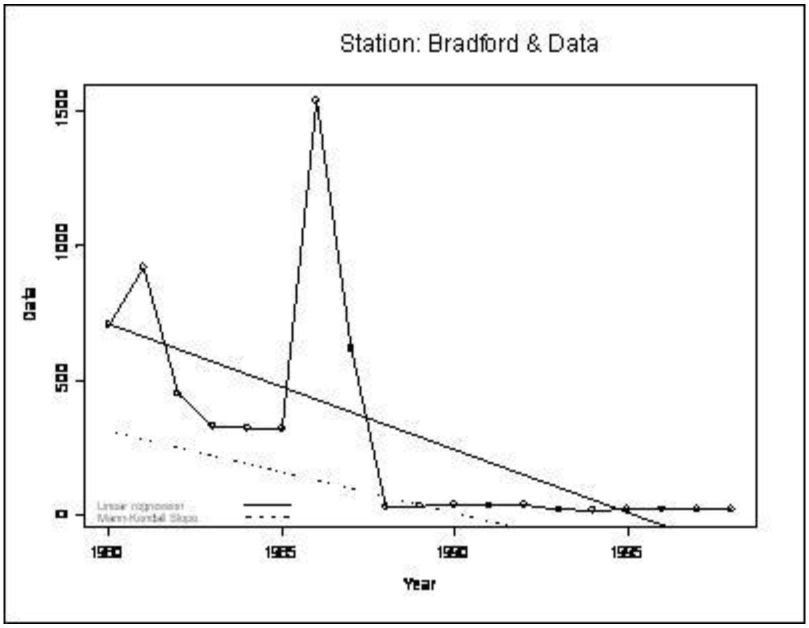


Data = Continuous AG water use data (CAG): AG water use only (M gall/yr)

Baker County, Florida

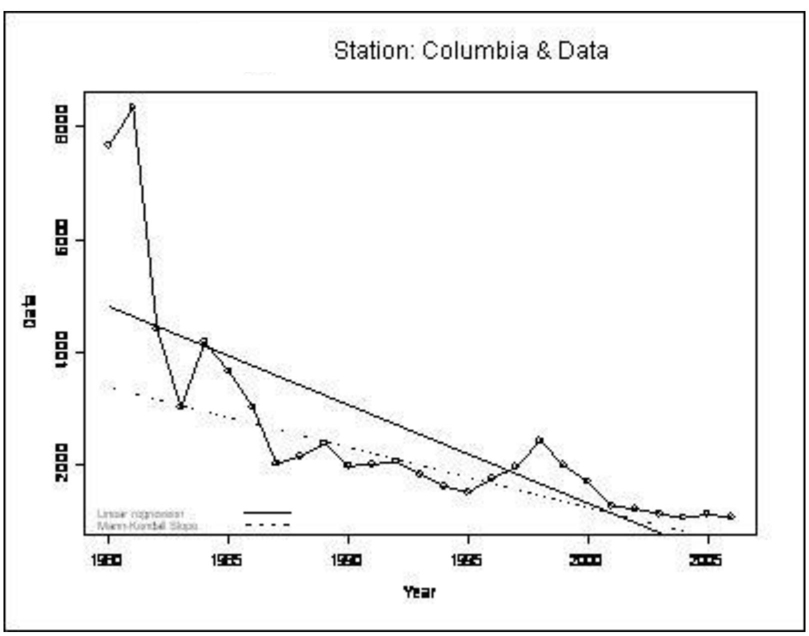


Bradford County, Florida



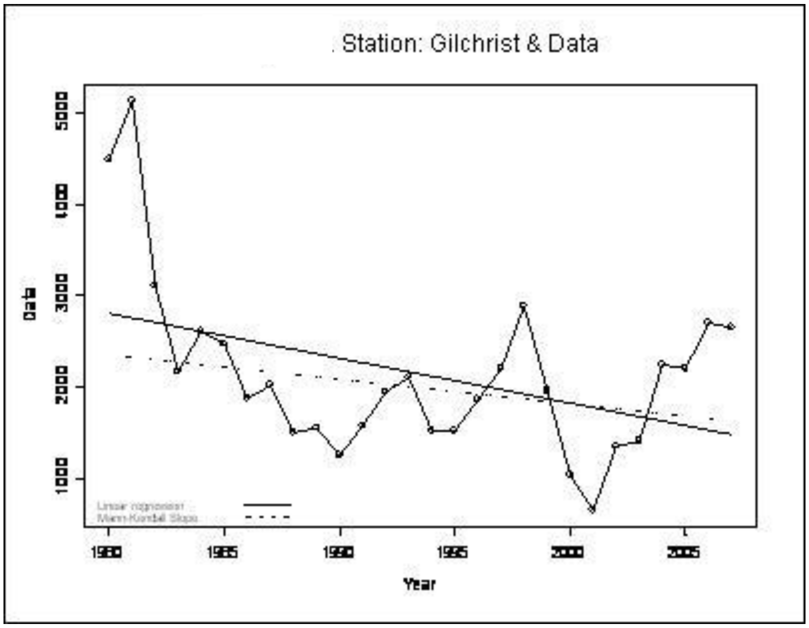
Data = Continuous AG water use data (CAG): AG water use only (M gall/yr)

Columbia County, Florida



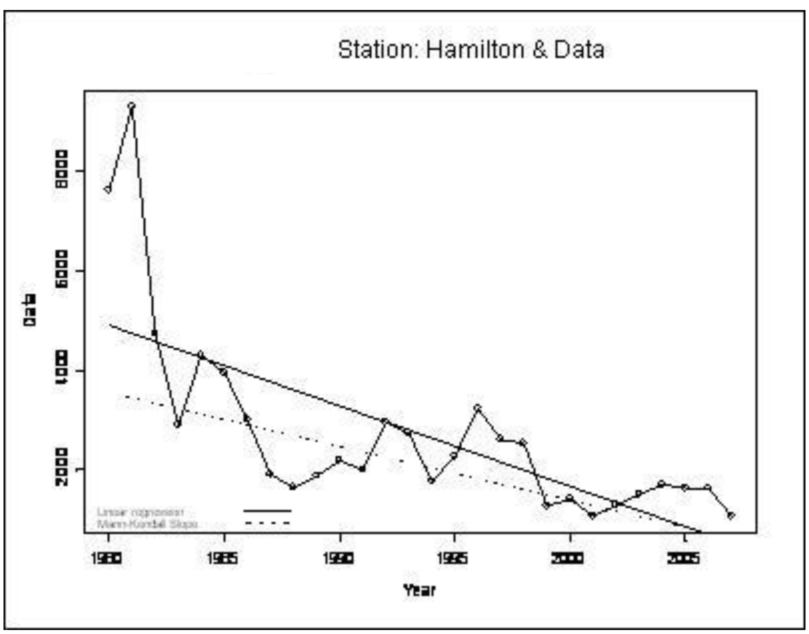
Dixie County, Florida - No Agricultural data

Gilchrist County, Florida

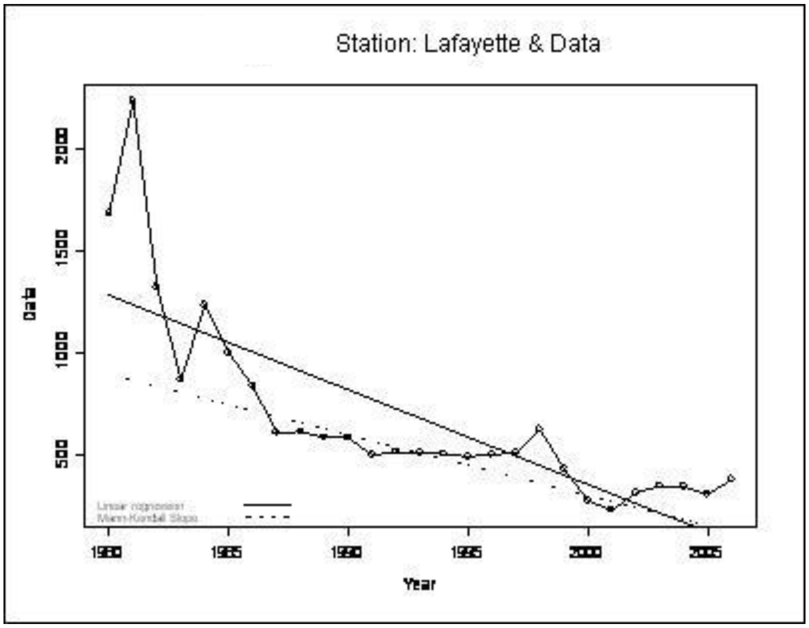


Data = Continuous AG water use data (CAG): AG water use only (M gall/yr)

Hamilton County, Florida

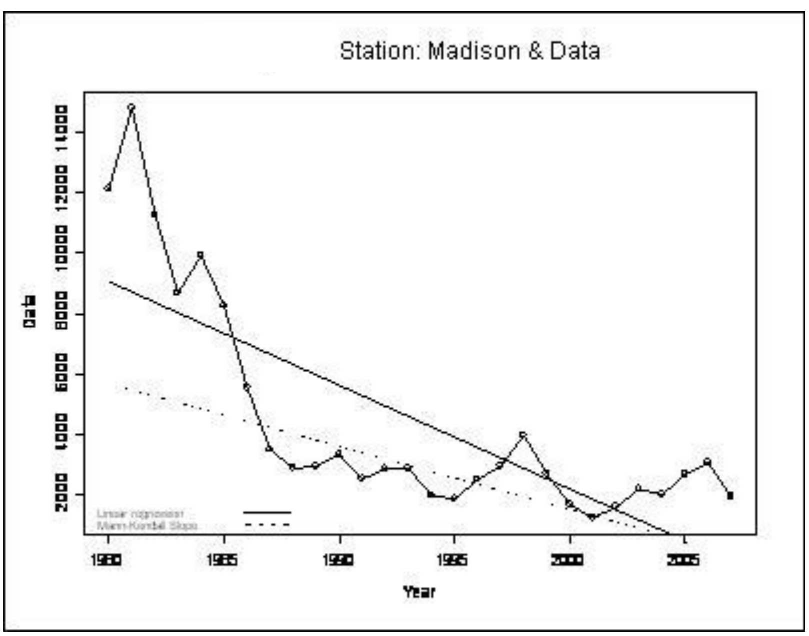


Lafayette County, Florida

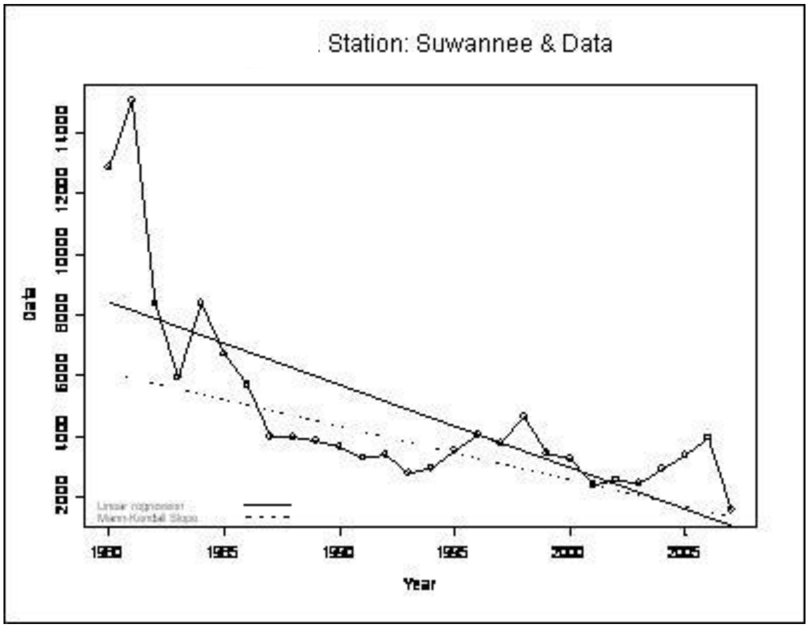


Data = Continuous AG water use data (CAG): AG water use only (M gall/yr)

Madison County, Florida



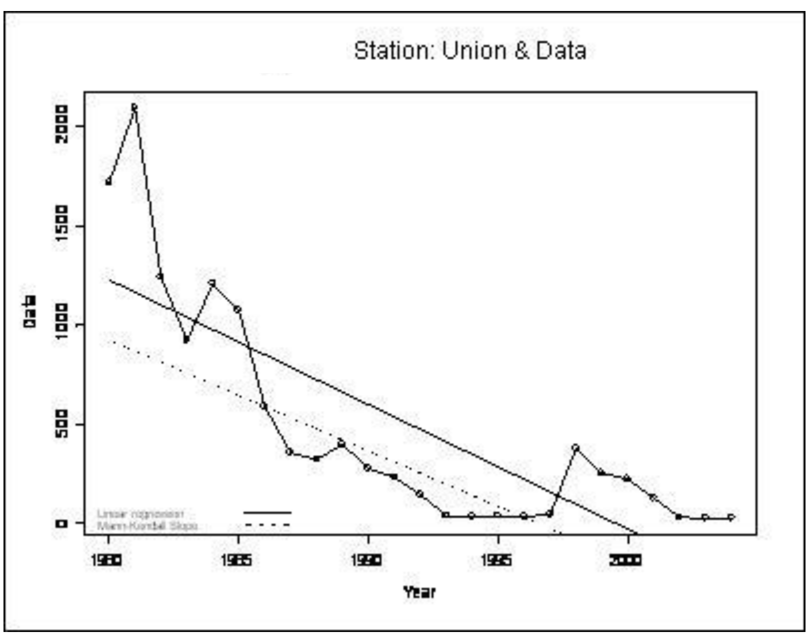
Suwannee County, Florida



Data = Continuous AG water use data (CAG): AG water use only (M gall/yr)

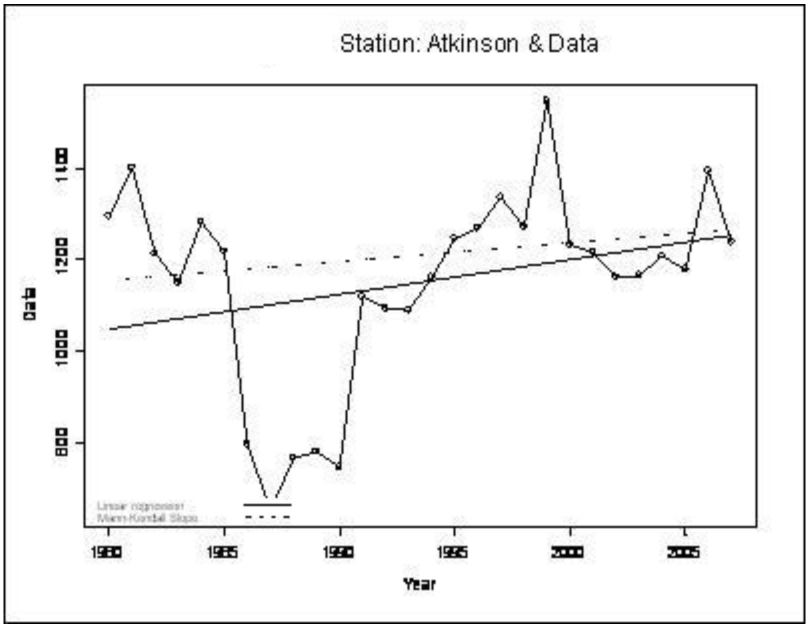
Taylor County, Florida - No Agricultural data

Union County, Florida



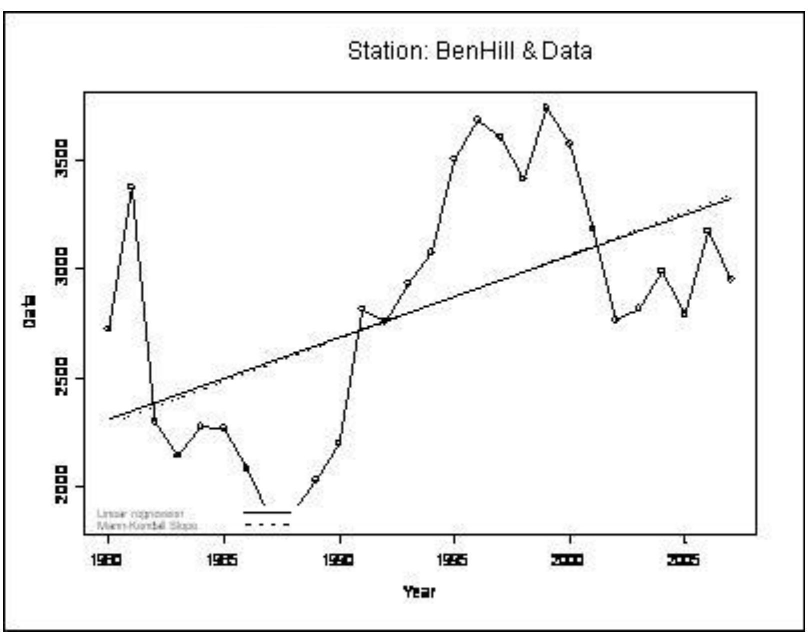
Appendix 17.5 Georgia Total Ground Water Withdrawal Trend:

Atkinson County, Georgia

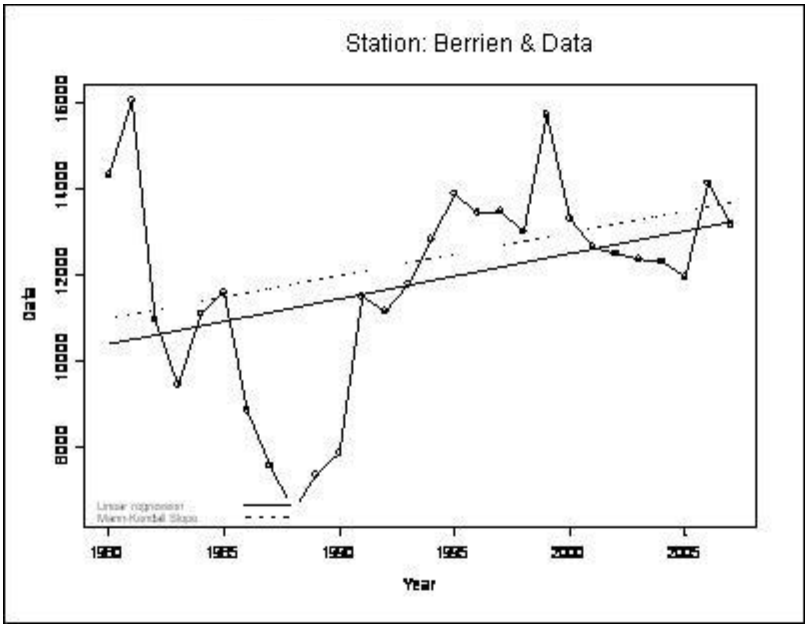


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

BenHill County, Georgia

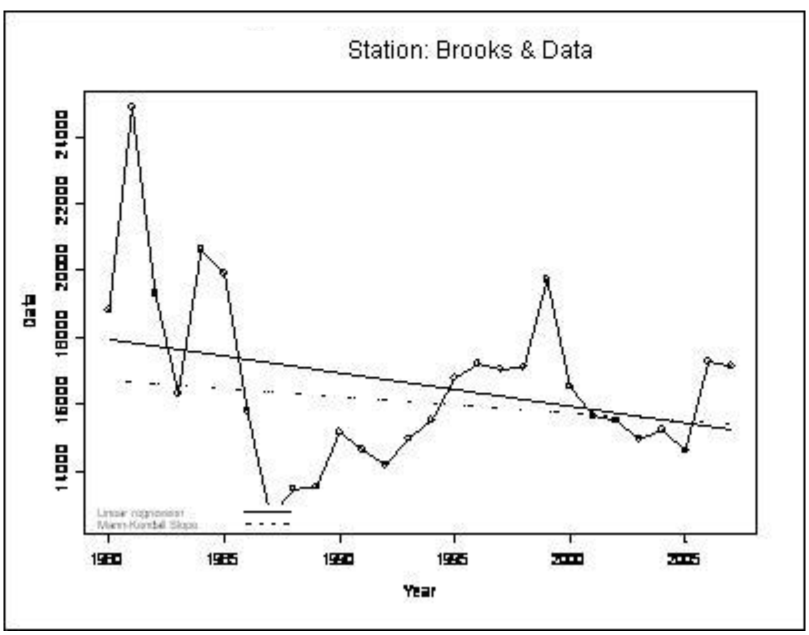


Berrien County, Georgia

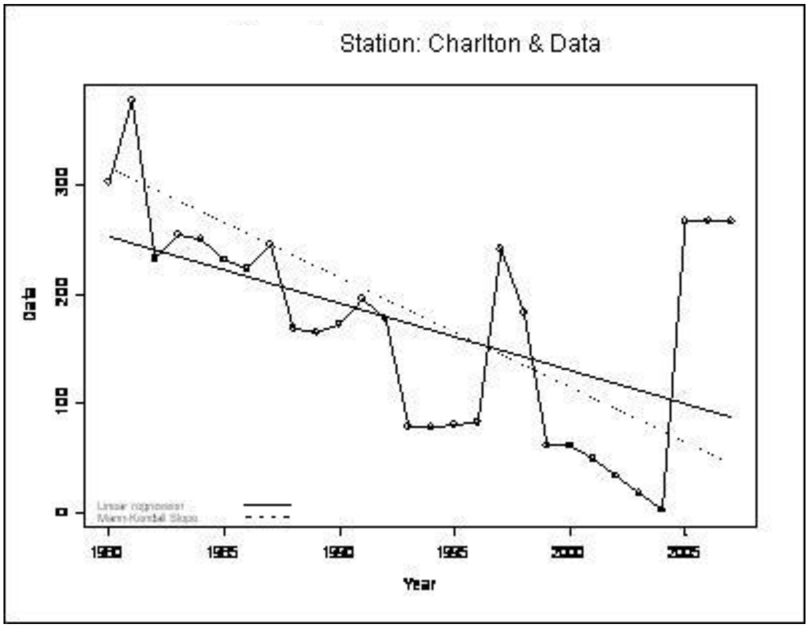


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Brooks County, Georgia

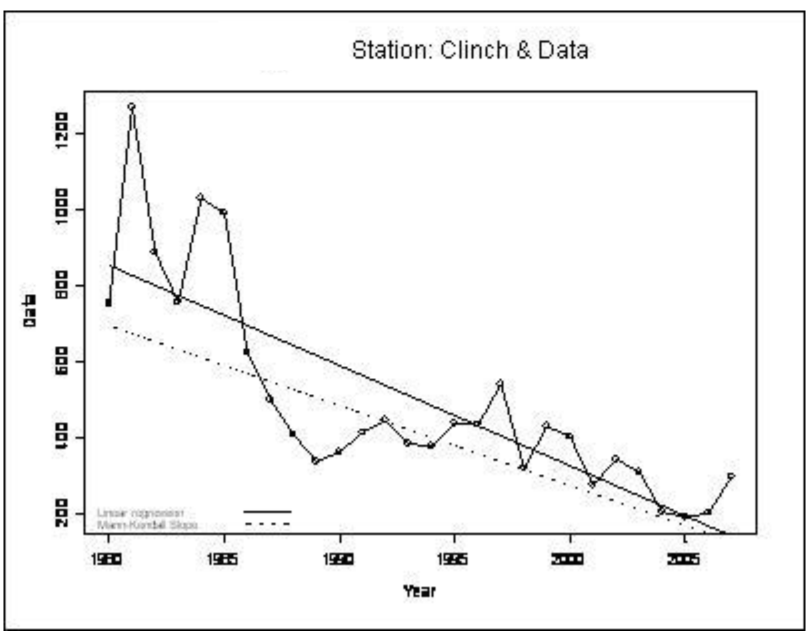


Charlton County, Georgia

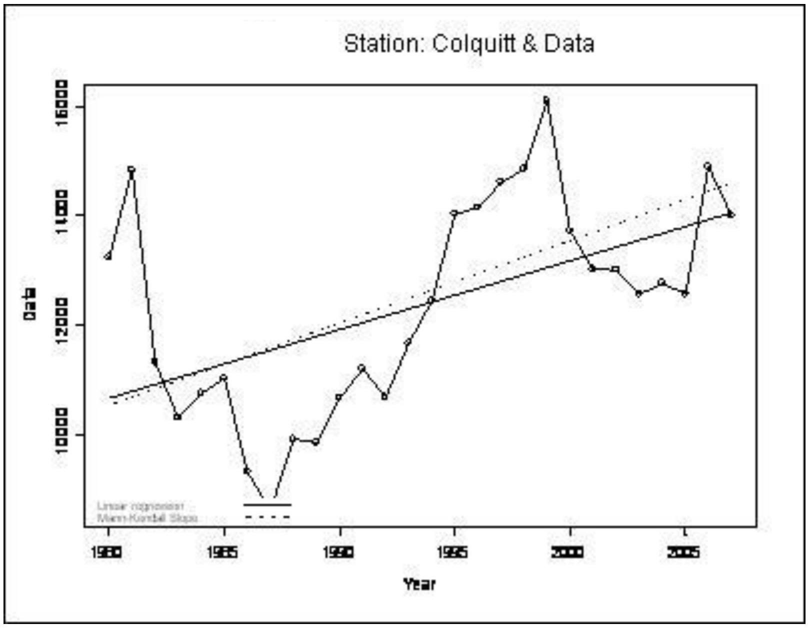


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Clinch County, Georgia

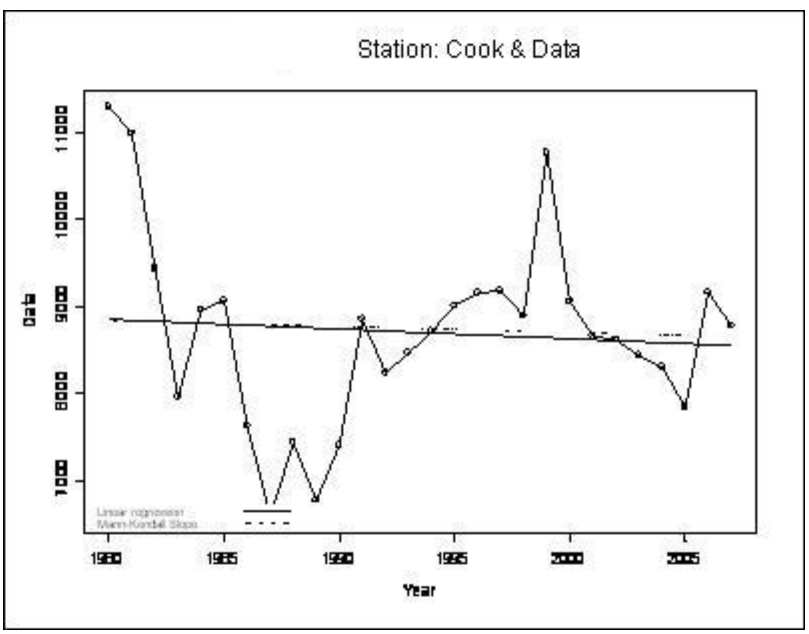


Colquitt County, Georgia

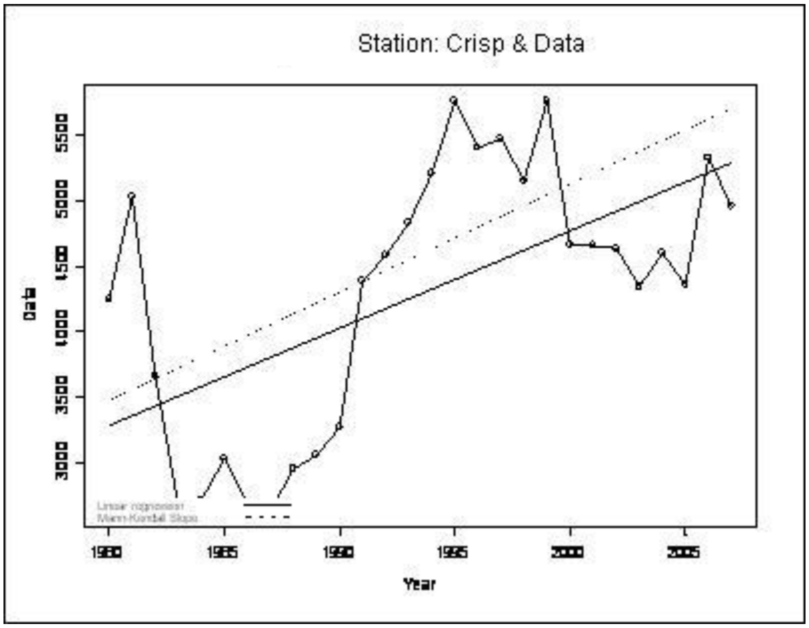


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Cook County, Georgia

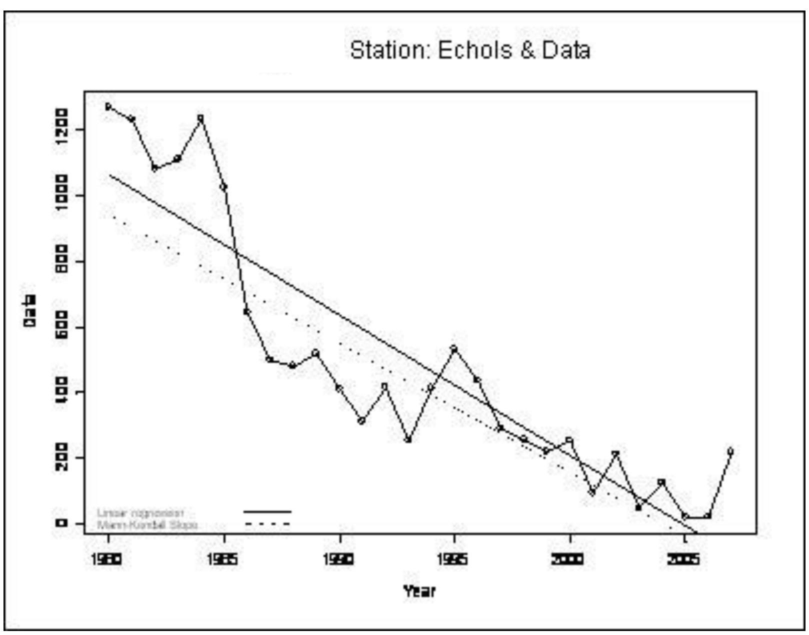


Crisp County, Georgia

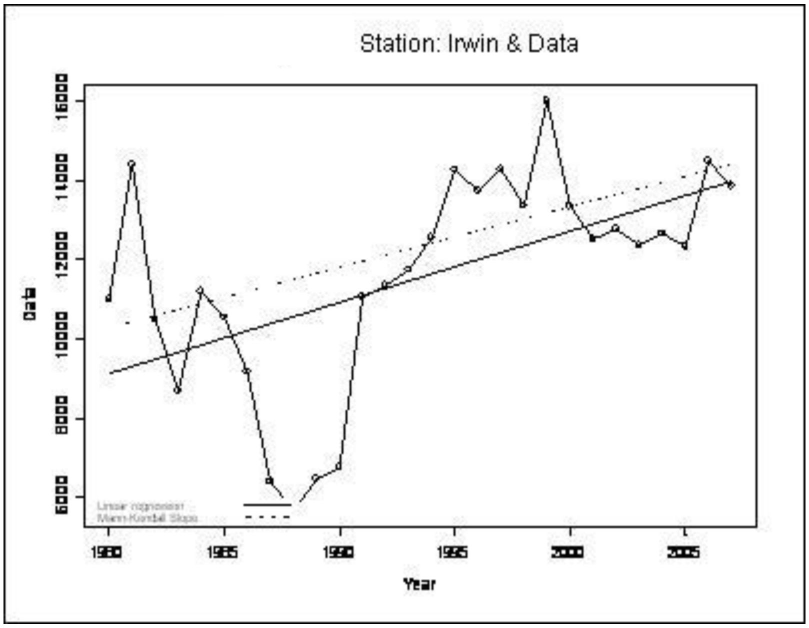


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Echols County, Georgia

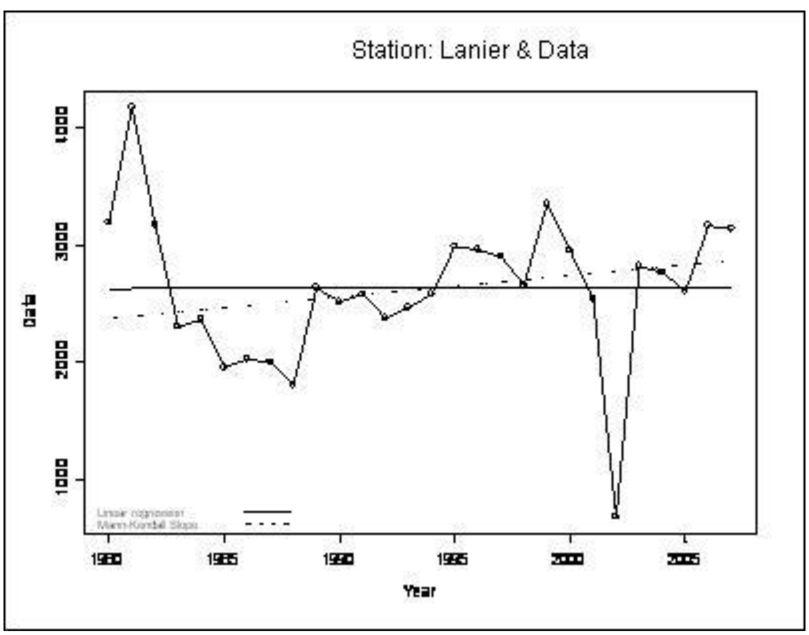


Irwin County, Georgia

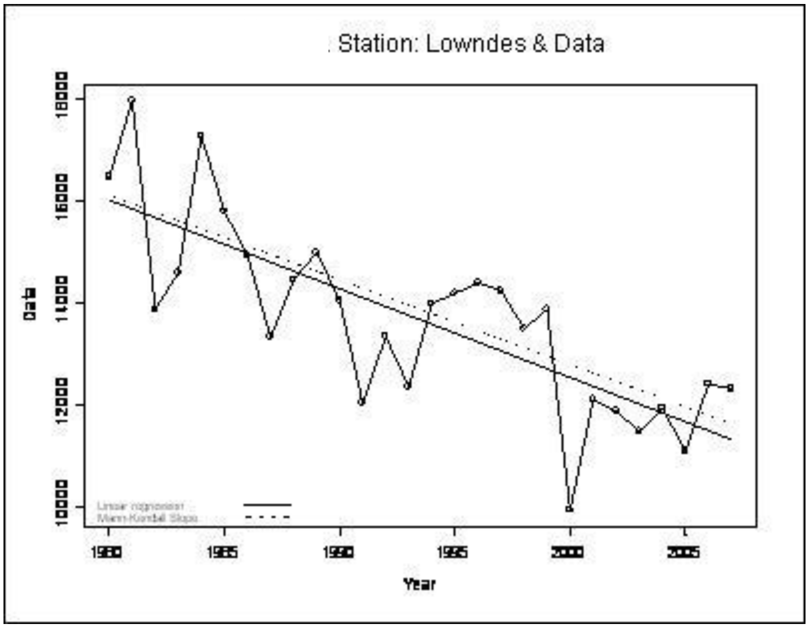


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Lanier County, Georgia

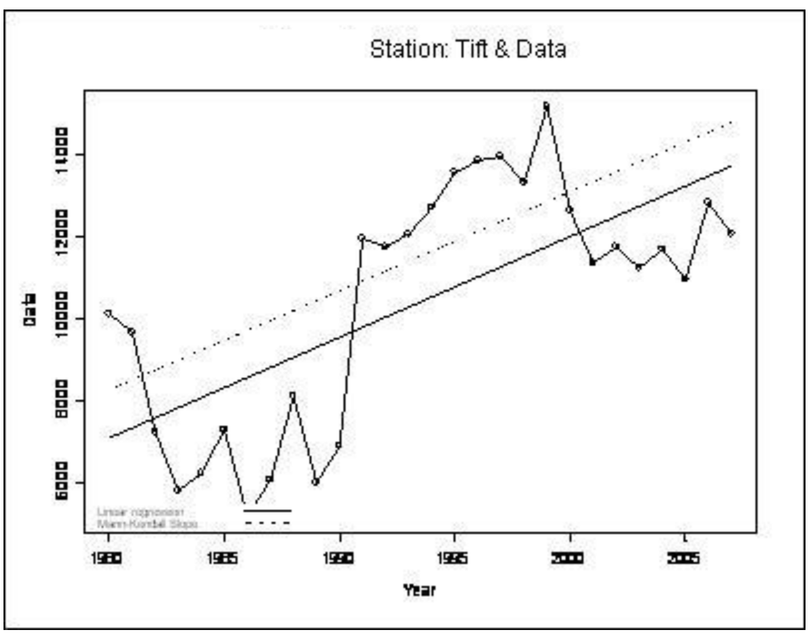


Lowndes County, Georgia

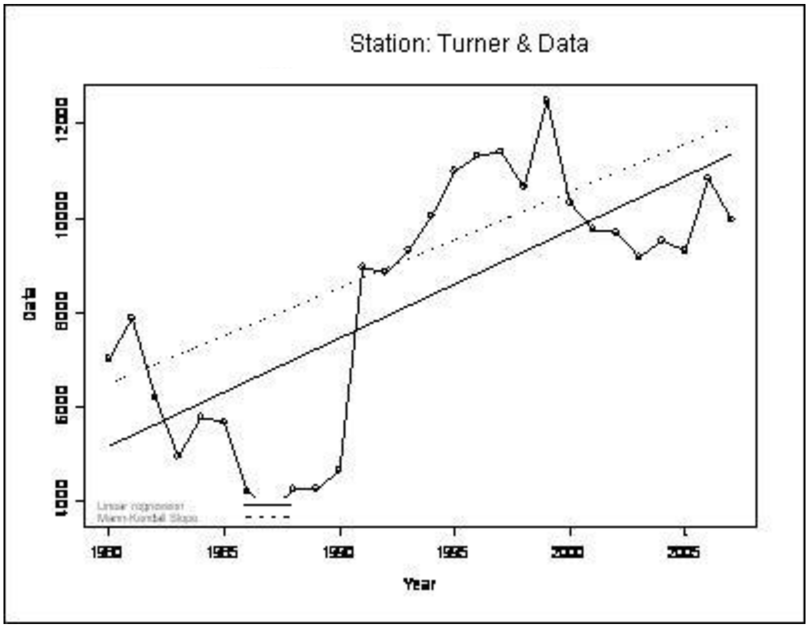


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Tift County, Georgia

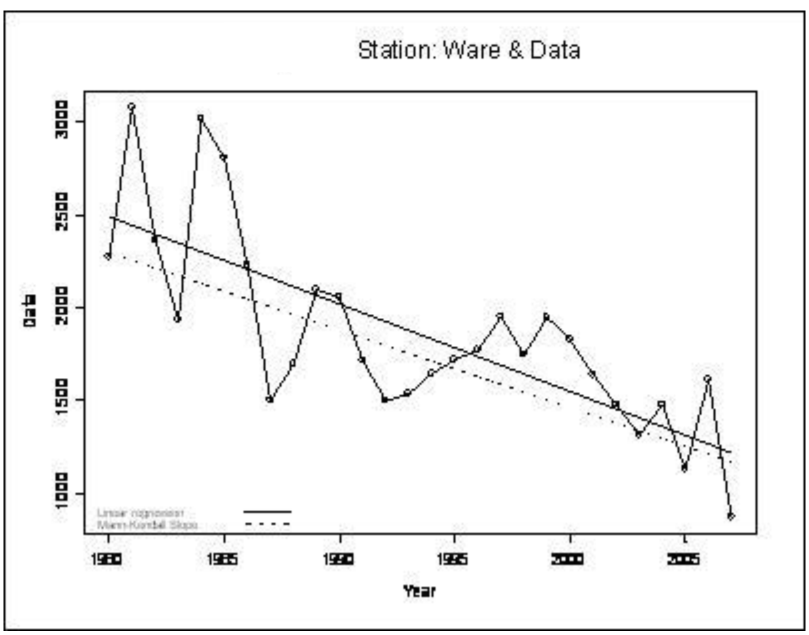


Turner County, Georgia

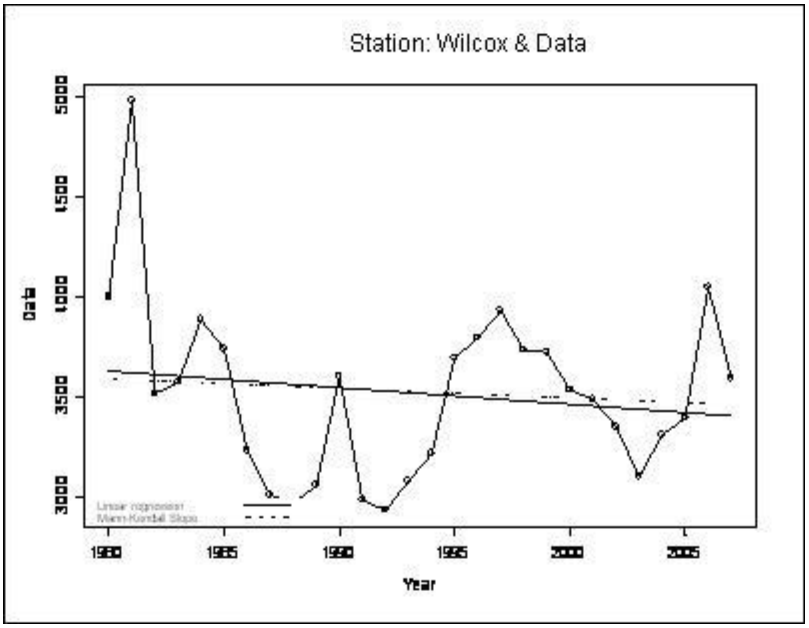


Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Ware County, Georgia

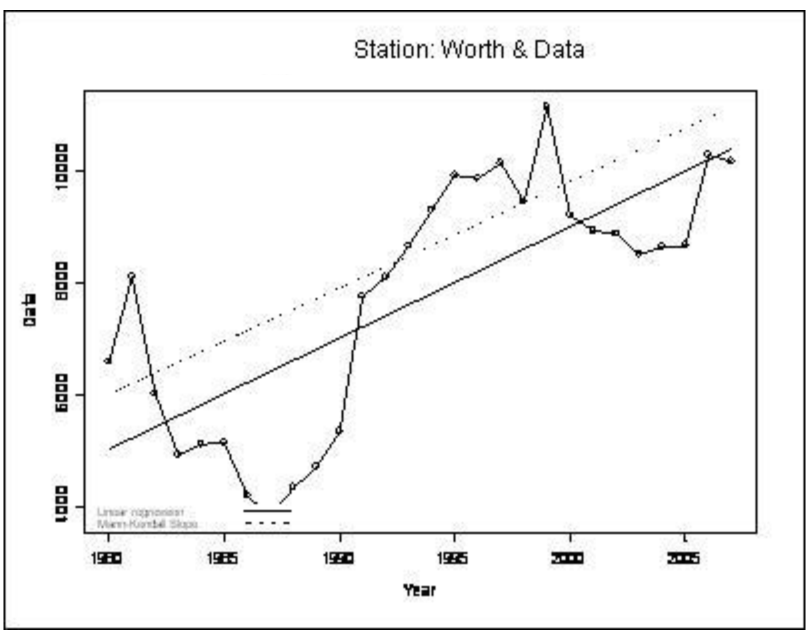


Wilcox County, Georgia



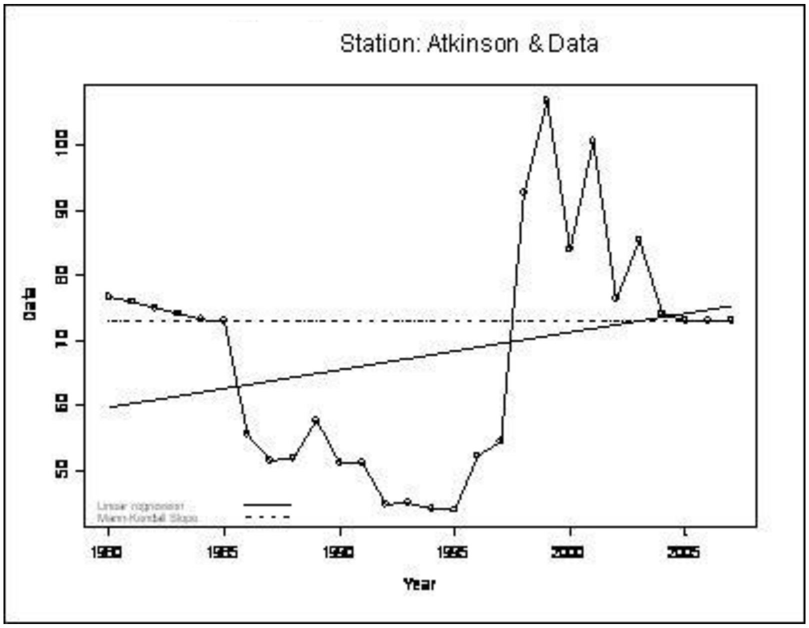
Data = Total groundwater withdrawal (TGW): Sum of the available data in all categories, missing data points were filled with zero (M gall/year).

Worth County, Georgia



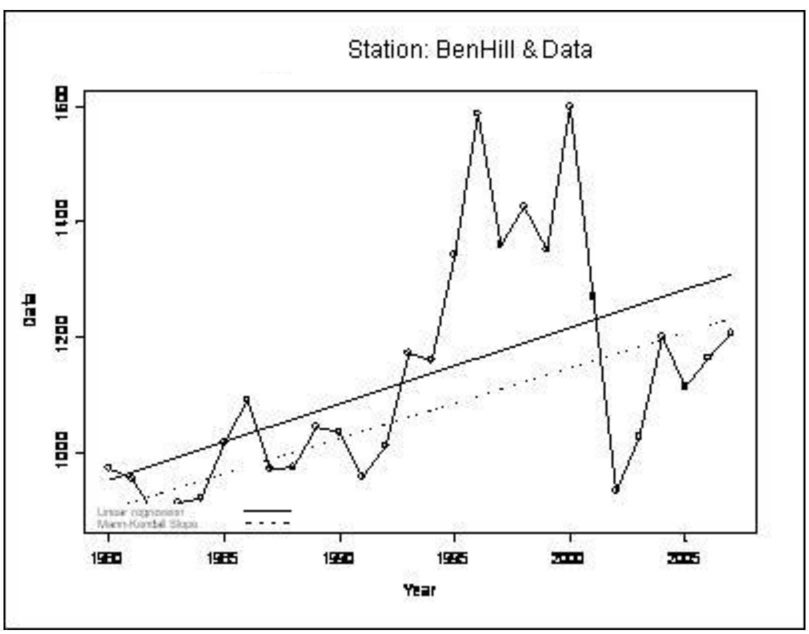
Appendix 17.6 Georgia Continuous Ground Water Withdrawal, without Agricultural data, Trend:

Atkinson County, Georgia

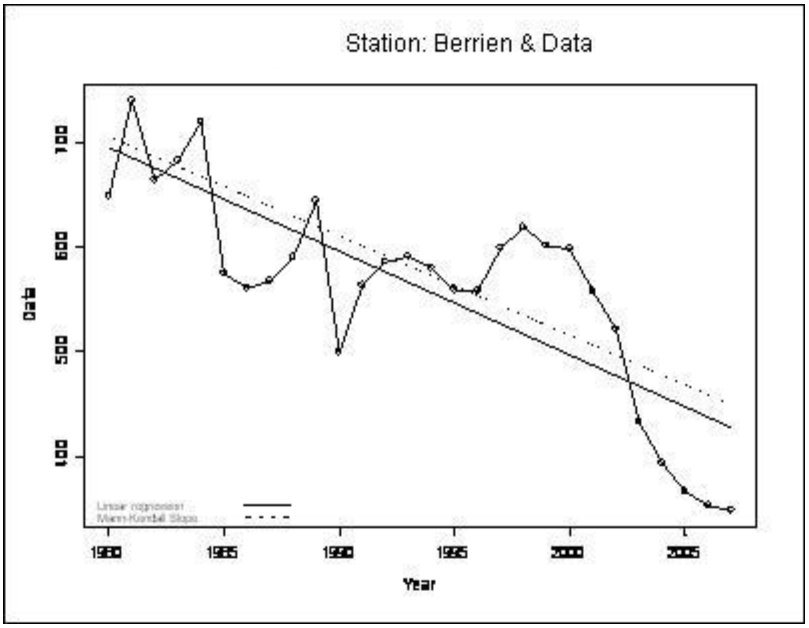


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

BenHill County, Georgia

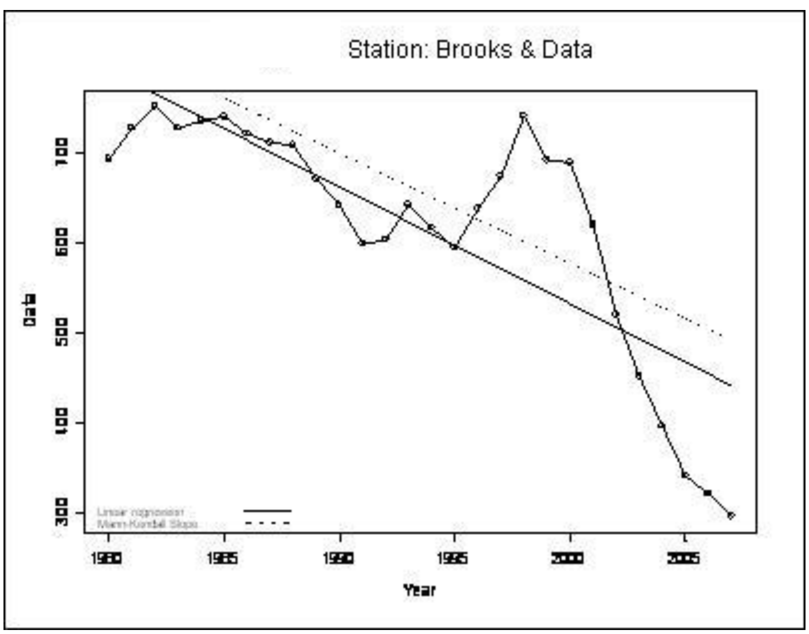


Berrien County, Georgia

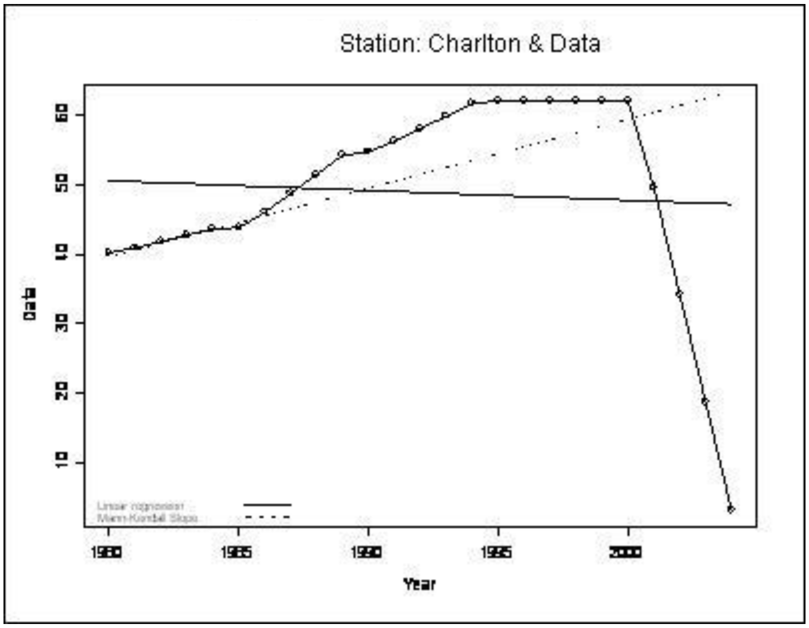


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

Brooks County, Georgia

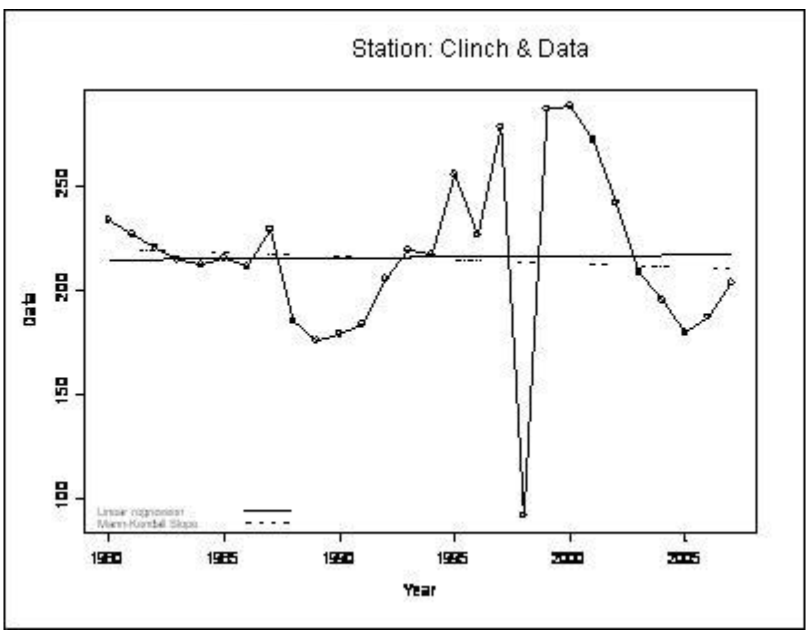


Charlton County, Georgia

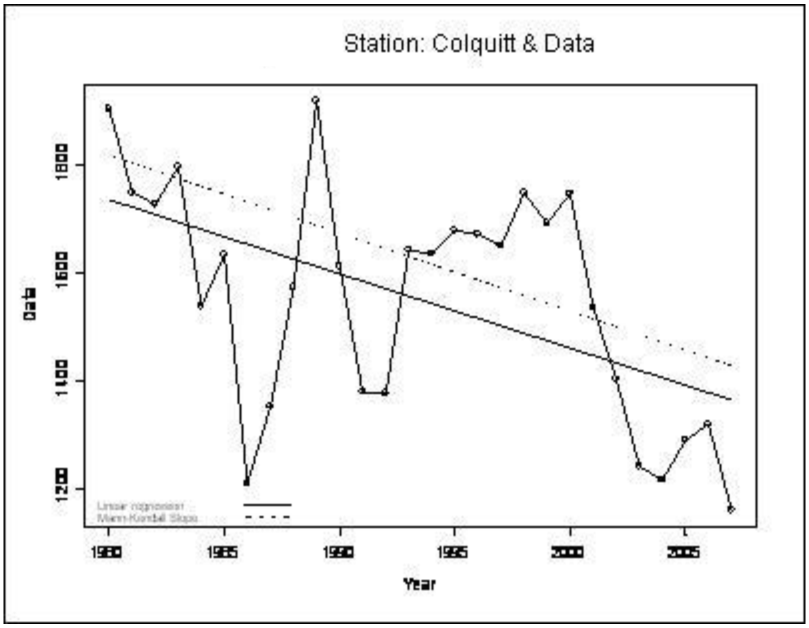


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

Clinch County, Georgia

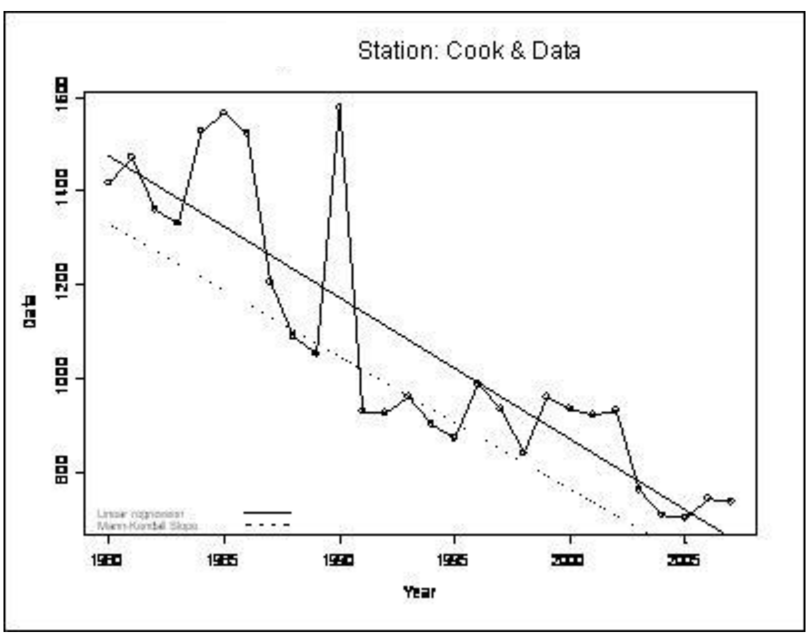


Colquitt County, Georgia

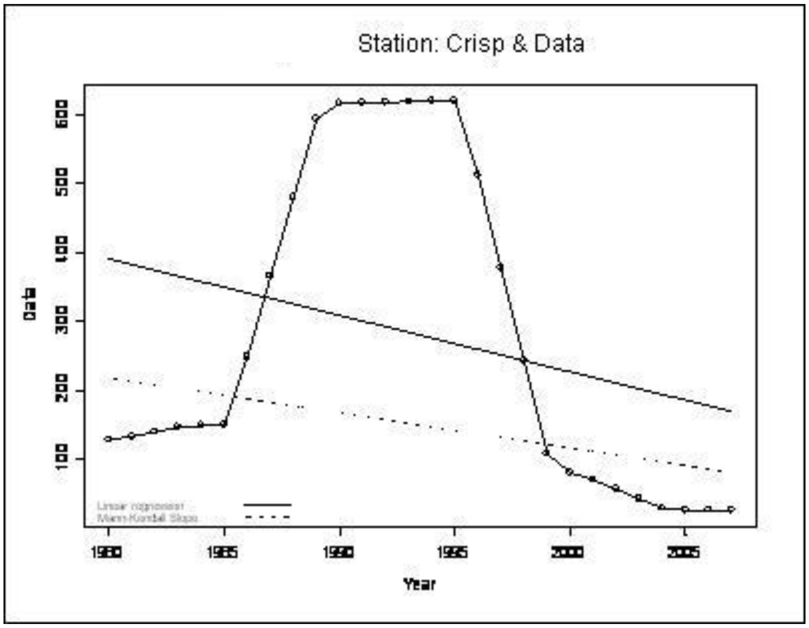


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

Cook County, Georgia

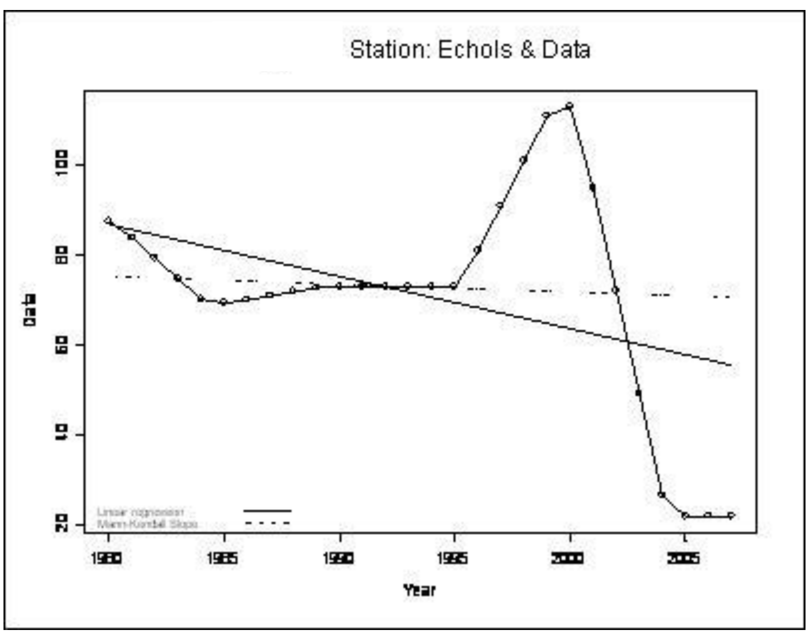


Crisp County, Georgia

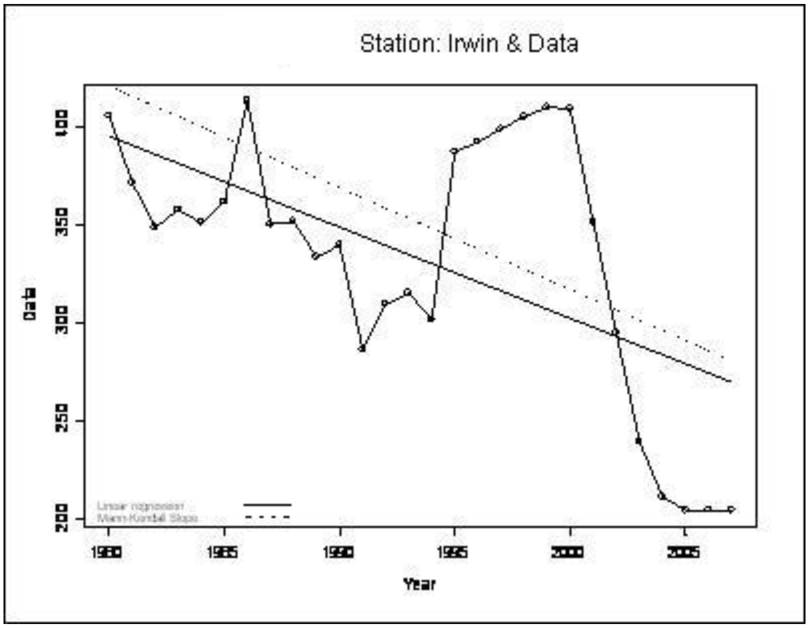


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

Echols County, Georgia

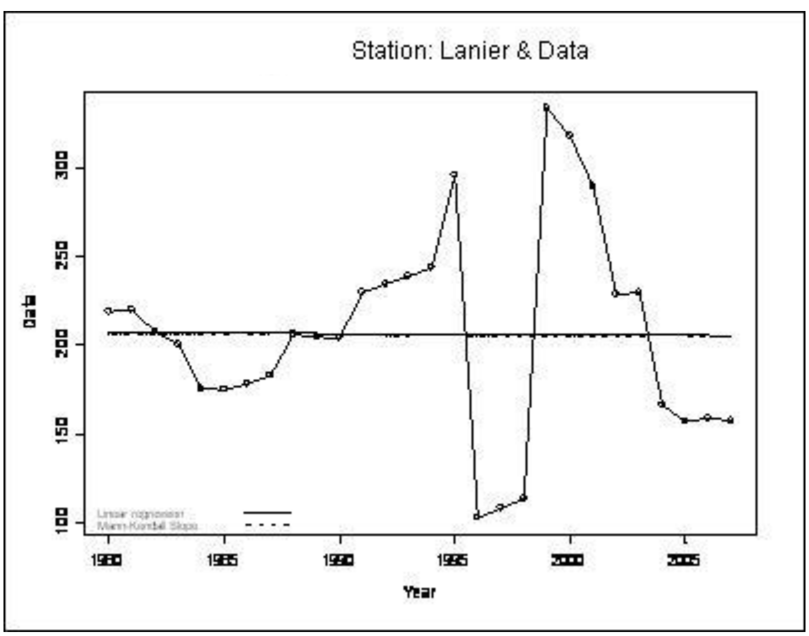


Irwin County, Georgia

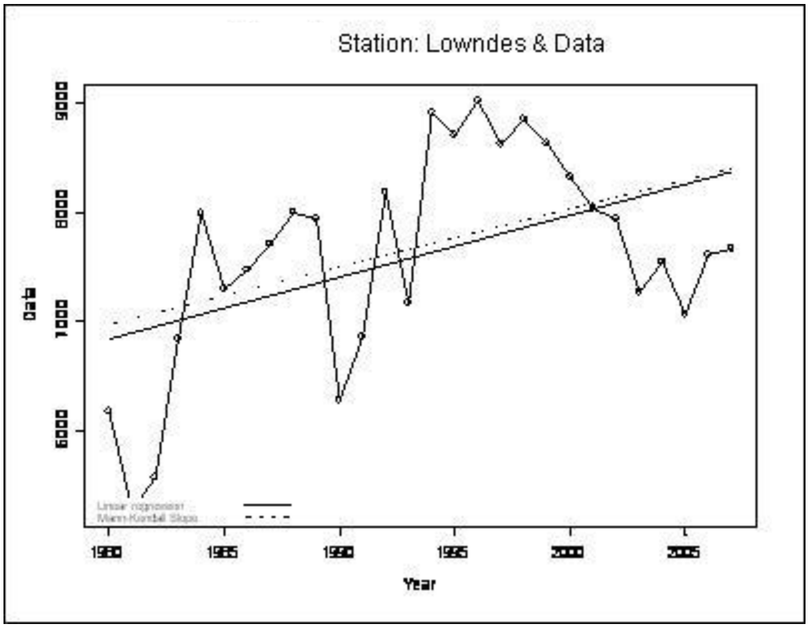


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

Lanier County, Georgia

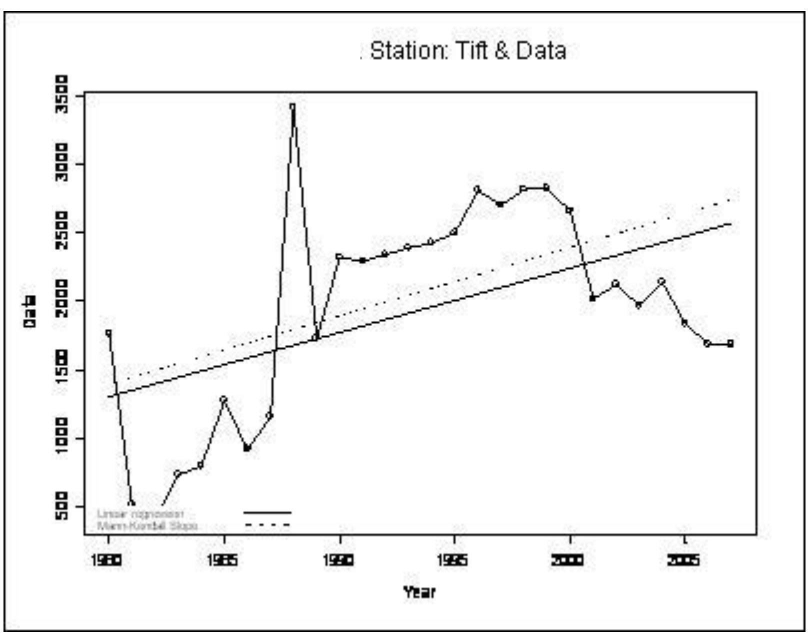


Lowndes County, Georgia

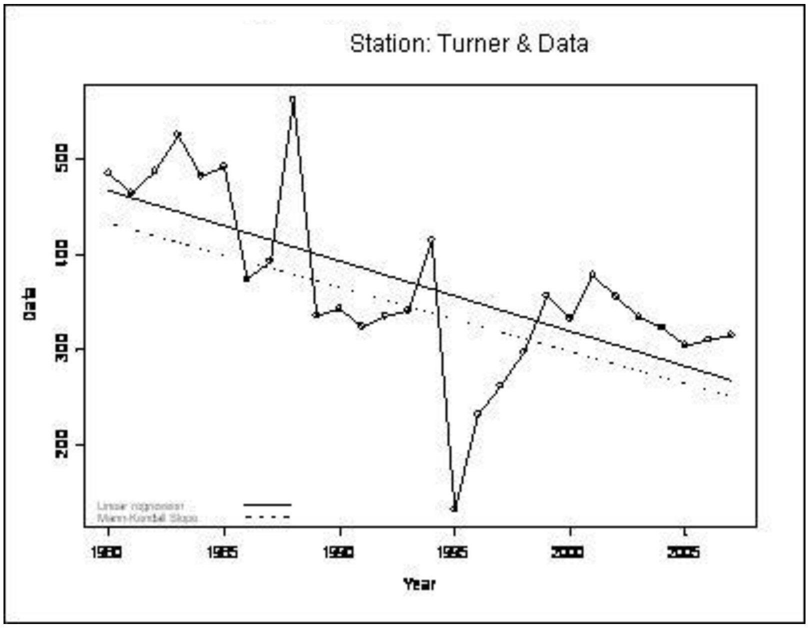


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

Tift County, Georgia

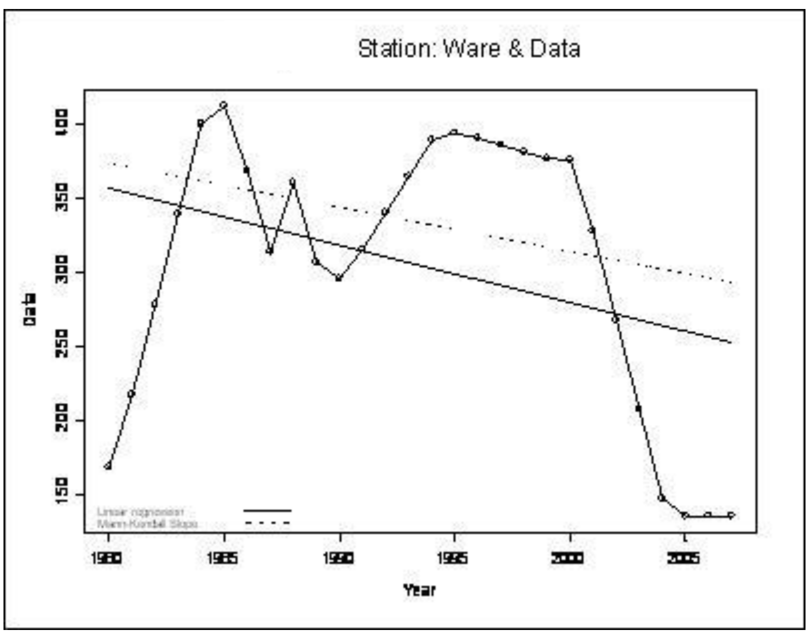


Turner County, Georgia

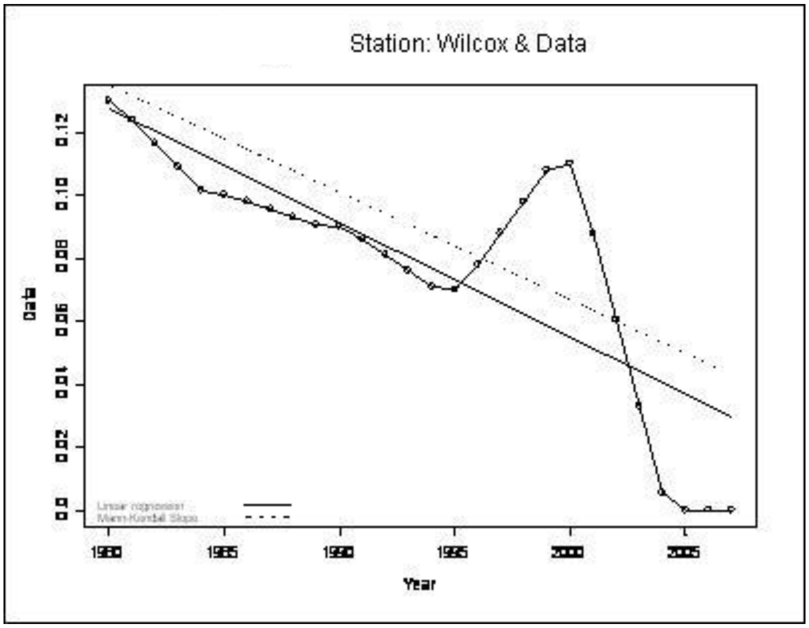


Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

Ware County, Georgia

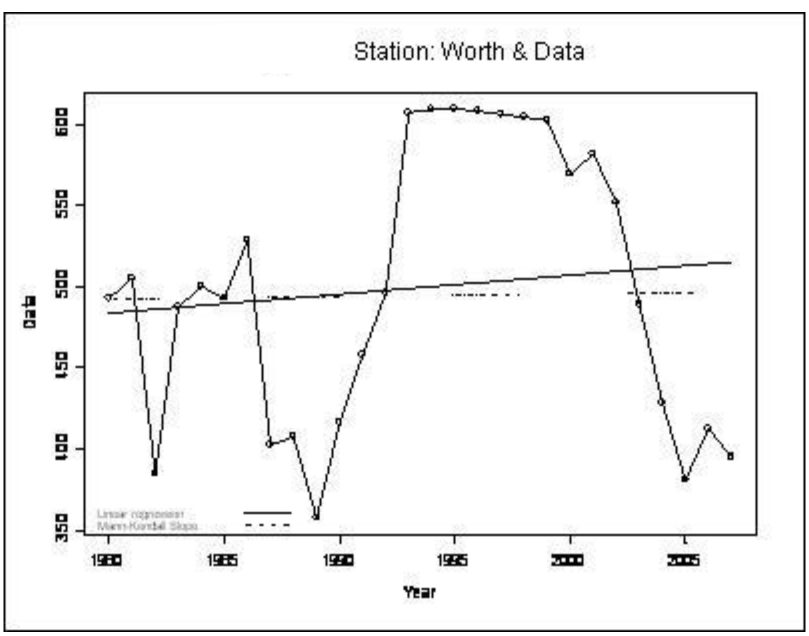


Wilcox County, Georgia



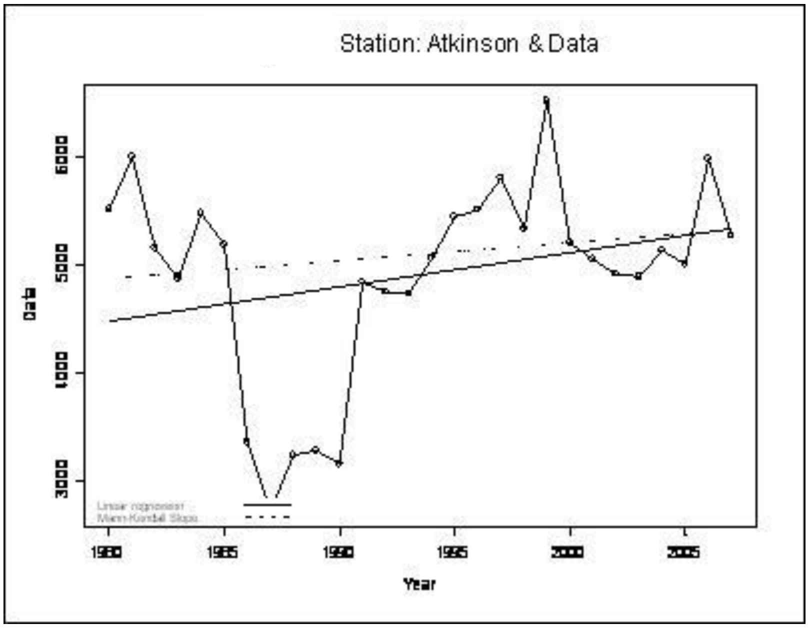
Data = Continuous groundwater withdrawal without AG (CGWNA): AG water use data were taken away from the CGW if applicable (M Gall/yr)

Worth County, Georgia



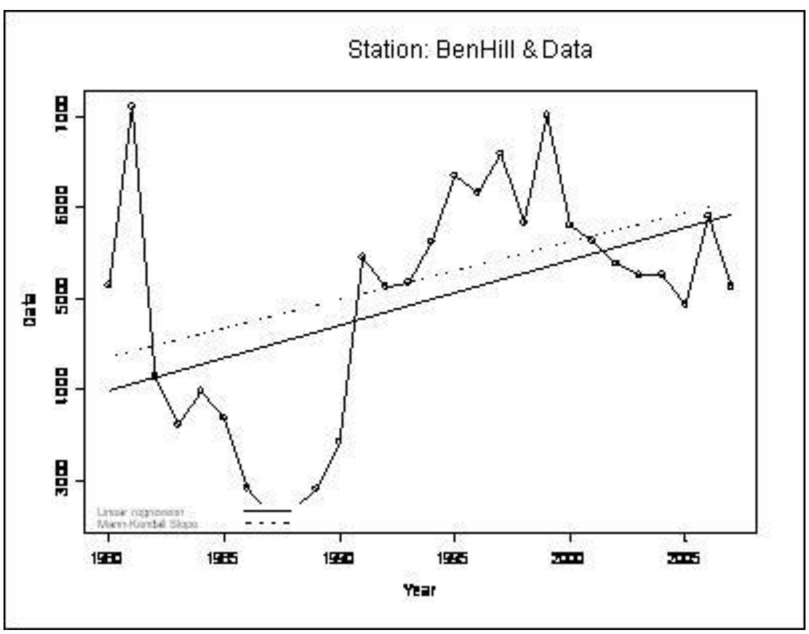
Appendix 17.7 Georgia Agricultural Ground Water Withdrawal Trend:

Atkinson County, Georgia

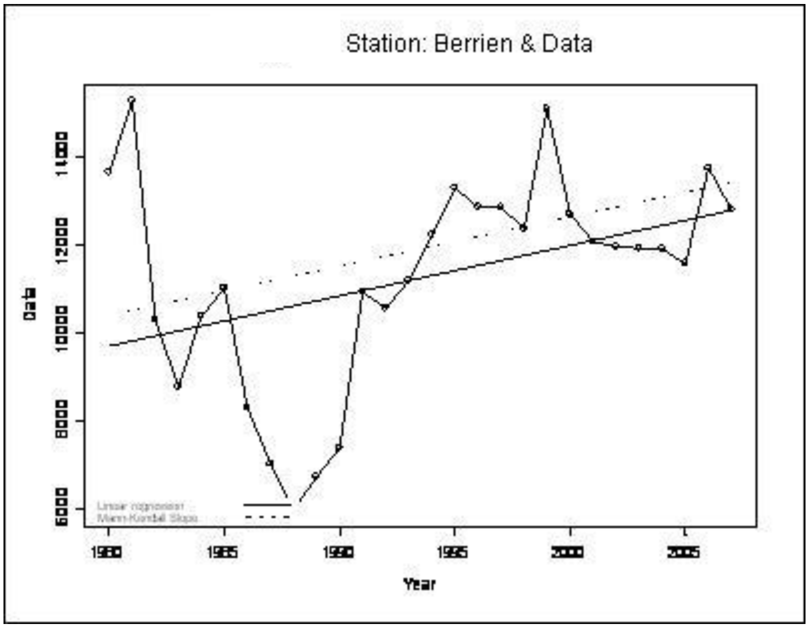


Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

BenHill County, Georgia

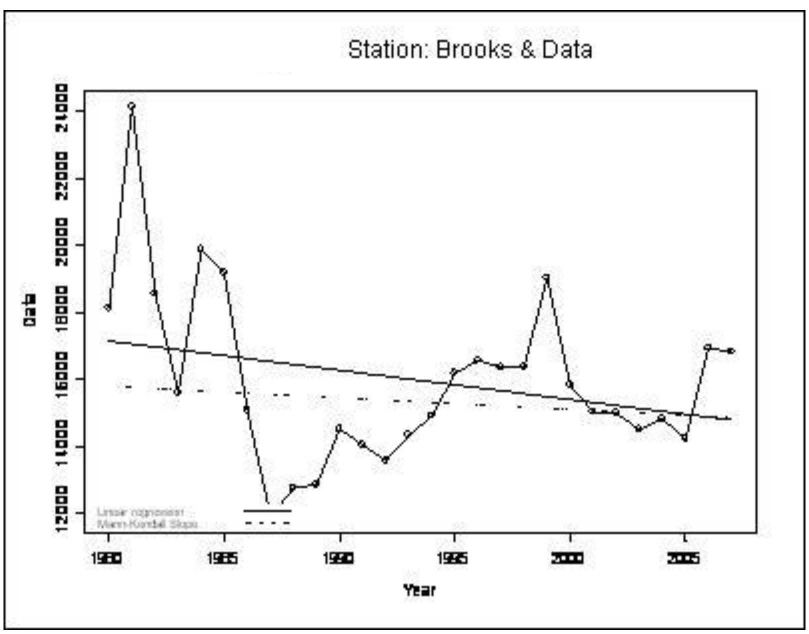


Berrien County, Georgia

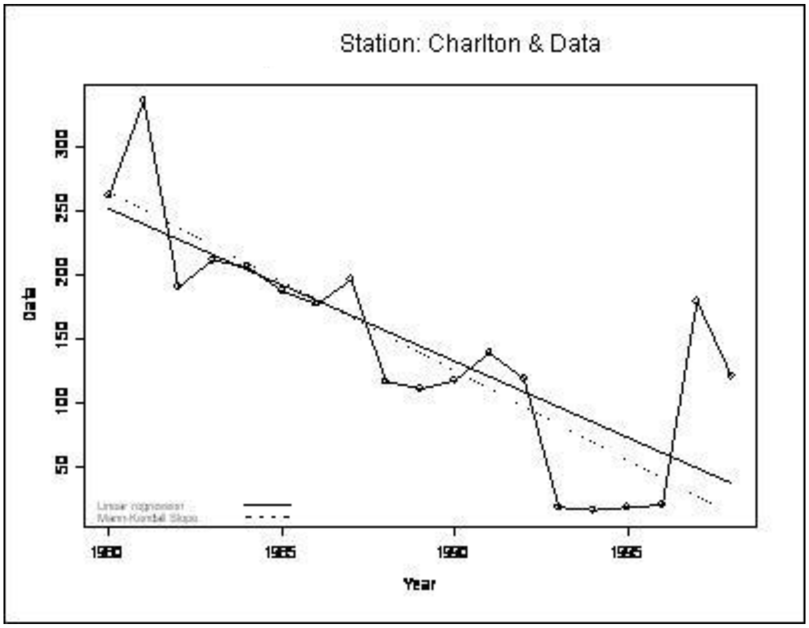


Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

Brooks County, Georgia

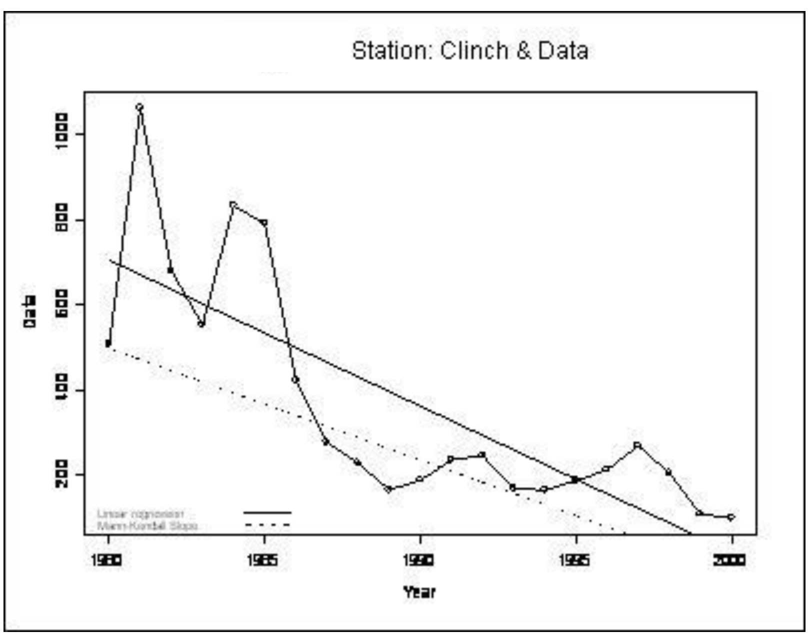


Charlton County, Georgia

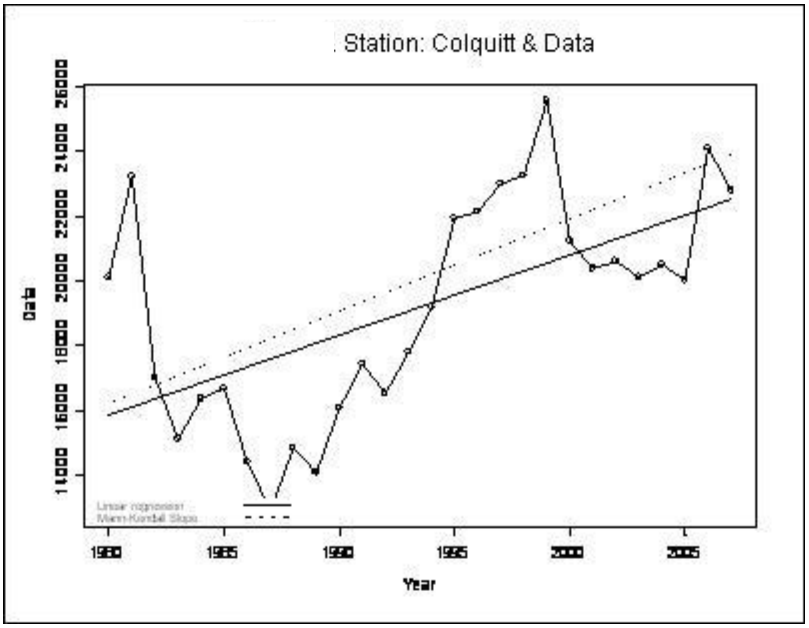


Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

Clinch County, Georgia

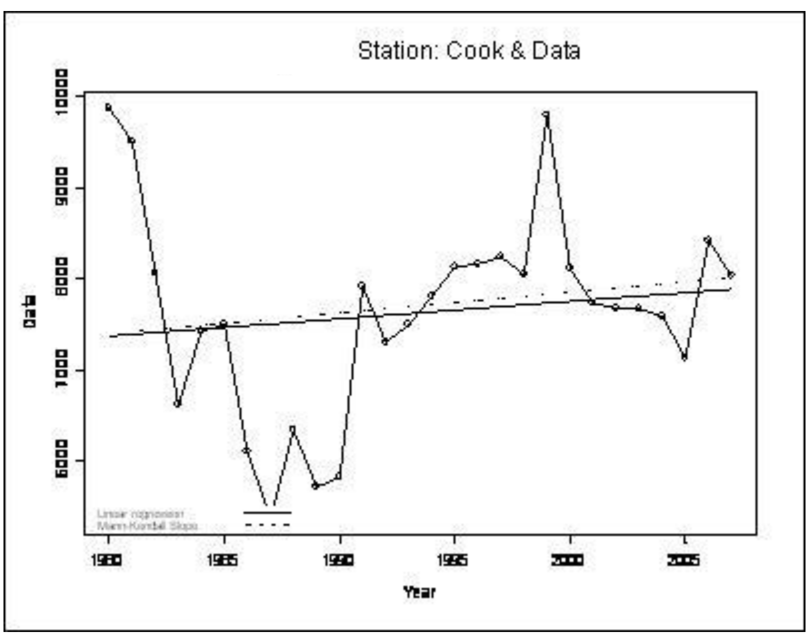


Colquitt County, Georgia

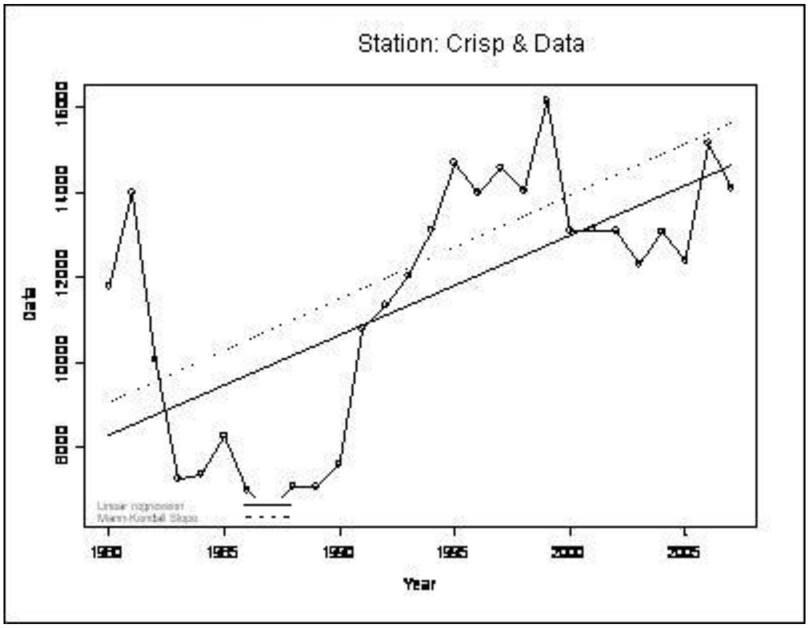


Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

Cook County, Georgia

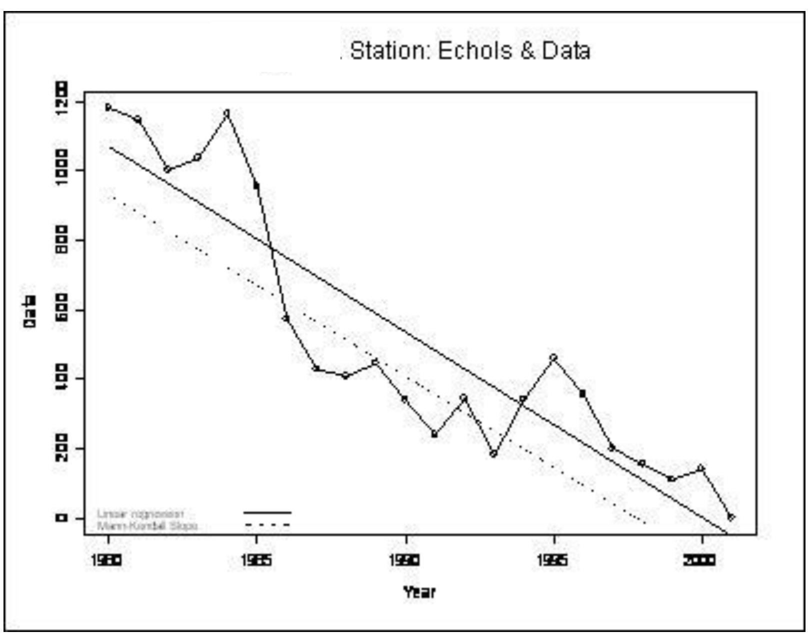


Crisp County, Georgia

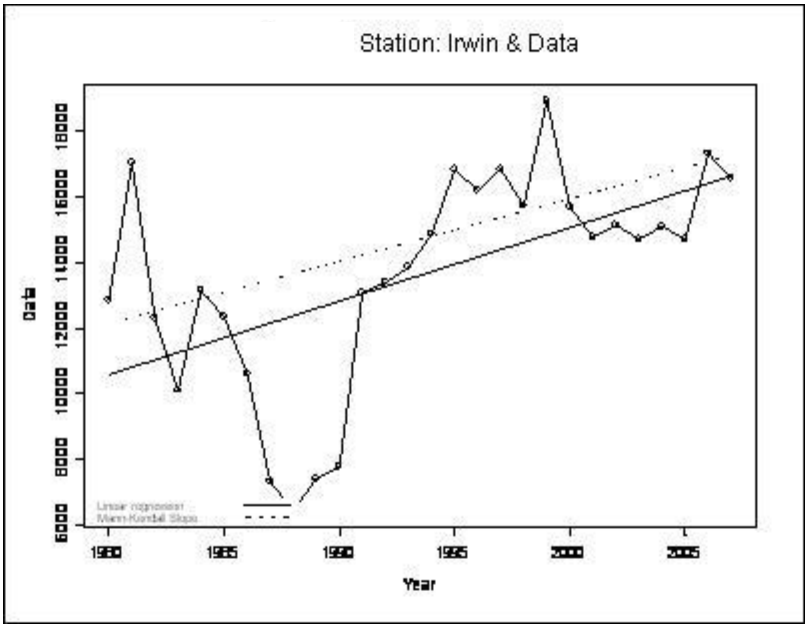


Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

Echols County, Georgia

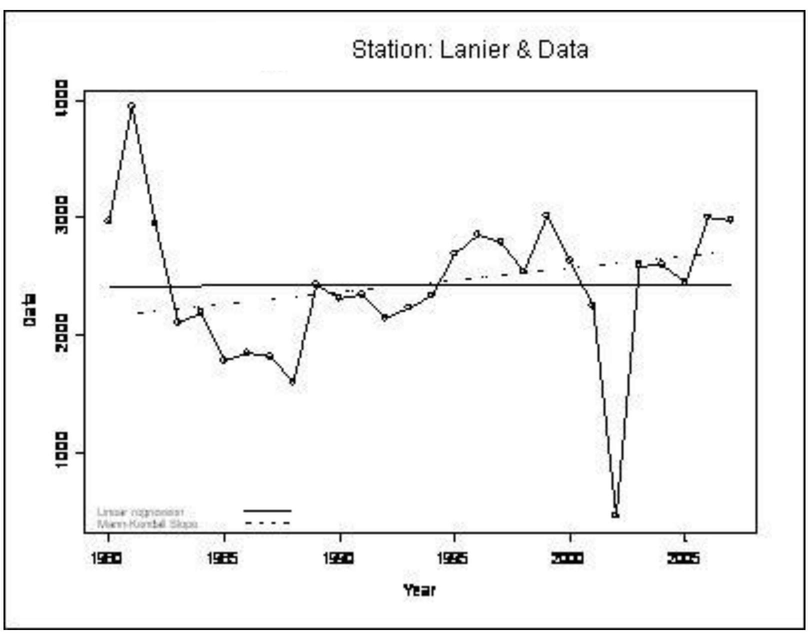


Irwin County, Georgia

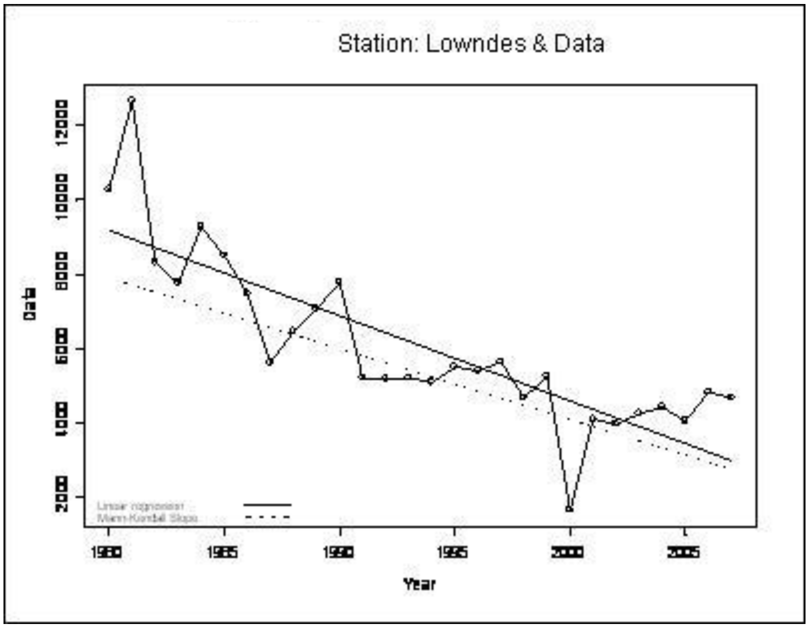


Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

Lanier County, Georgia

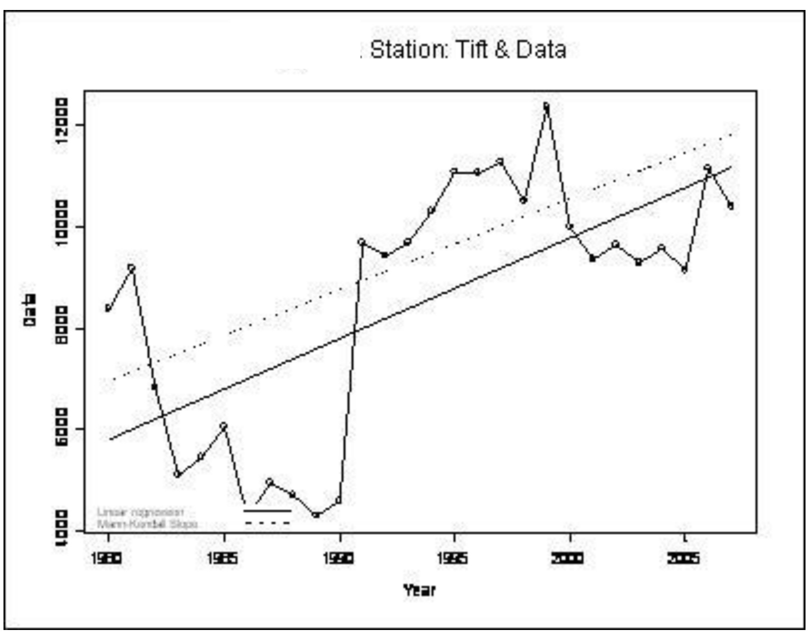


Lowndes County, Georgia

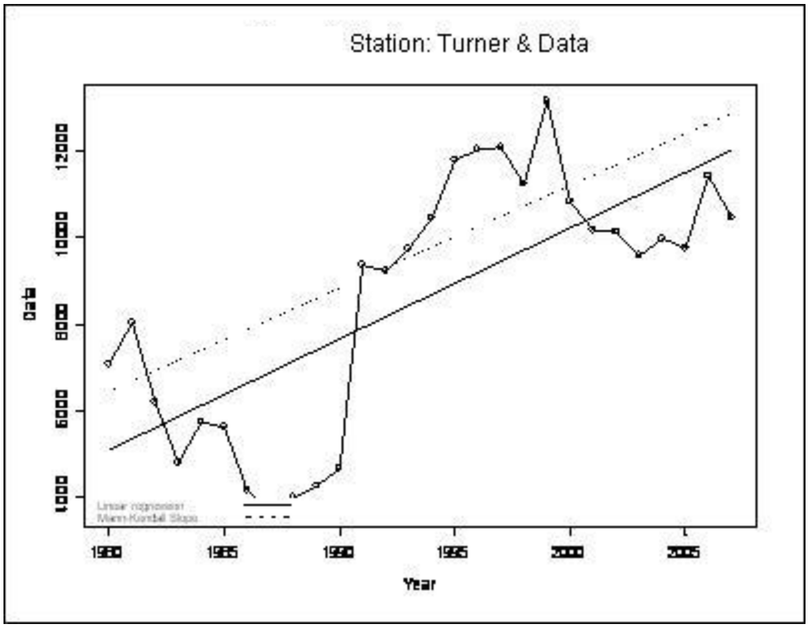


Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

Tift County, Georgia

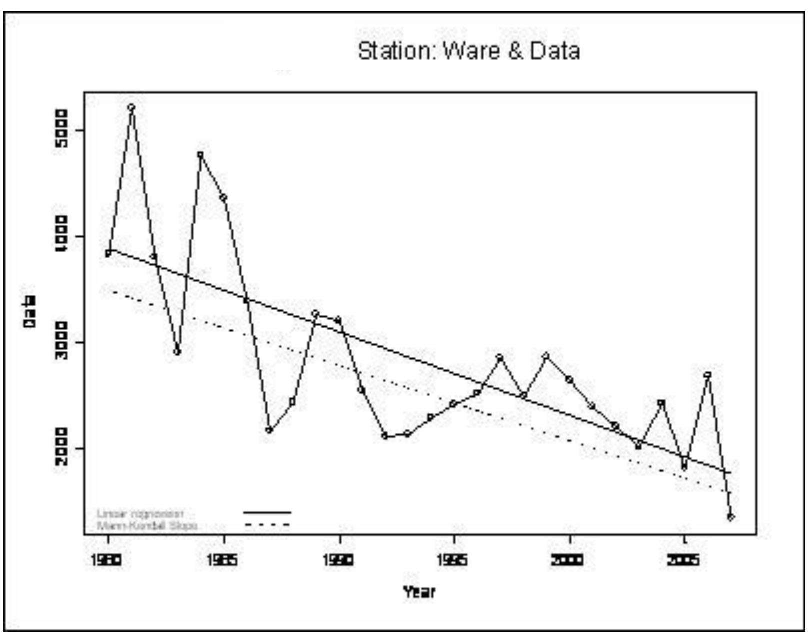


Turner County, Georgia

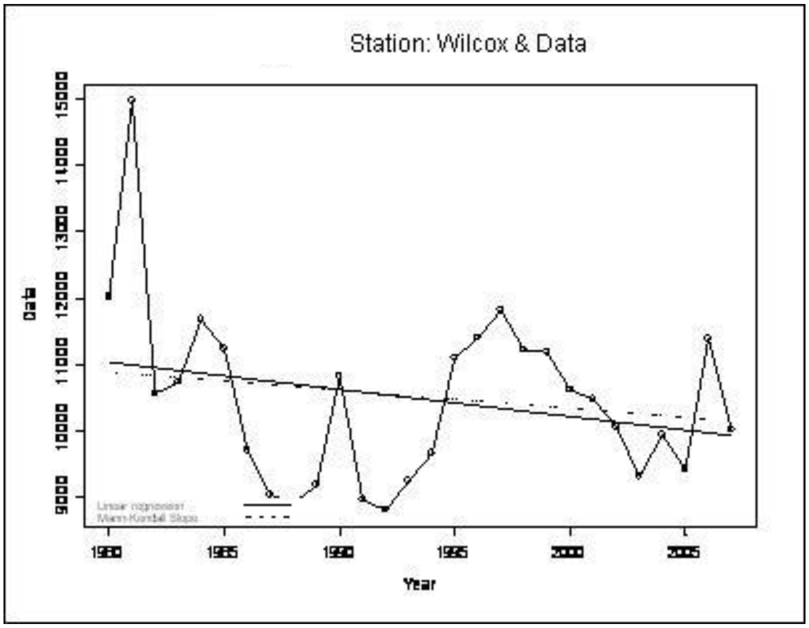


Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

Ware County, Georgia

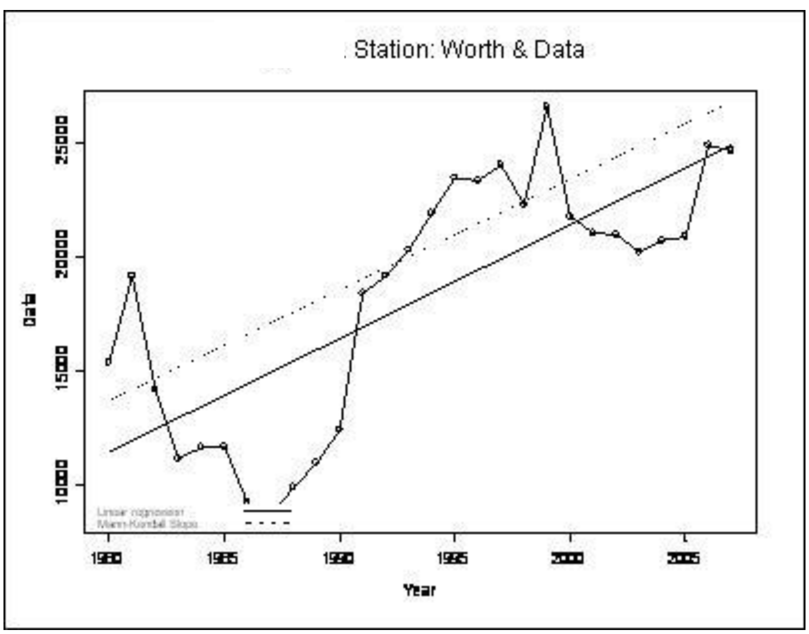


Wilcox County, Georgia



Data = Continuous AG water use data (CAG): AG water use only (M Gall/yr)

Worth County, Georgia

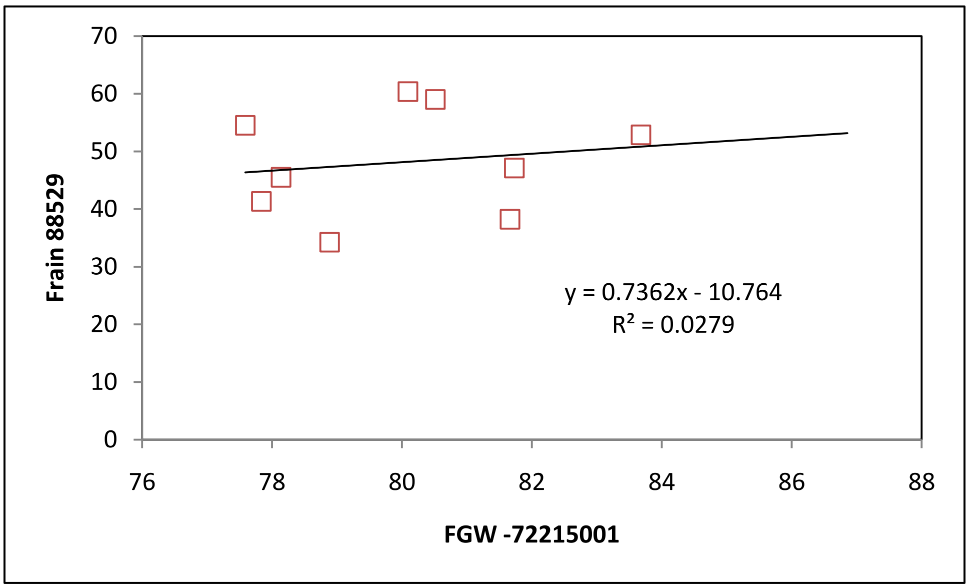


Appendix 18: Correlation Analysis Data

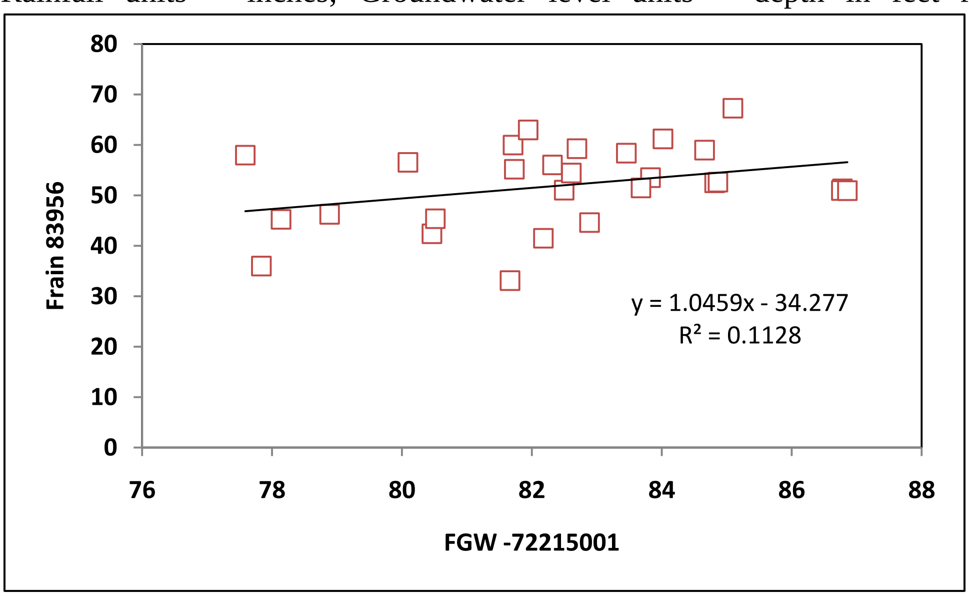
Following is a graphical summary of the correlation analysis. Groundwater (GW) well stations with very certain or probable trends (confidence level > 90%) were paired with the two nearest rainfall and stream flow stations. The selected rainfall (Frain or Grain) or stream (FStream or GStream) data were labeled with the station ID in the y-axis and plotted against groundwater levels (FGW) which were labeled with the station ID in the x-axis. Rain data were from NCDC. Florida groundwater was from the SRWMD and Georgia groundwater was from USGS.

Appendix 18.1 Florida Groundwater vs. Rainfall

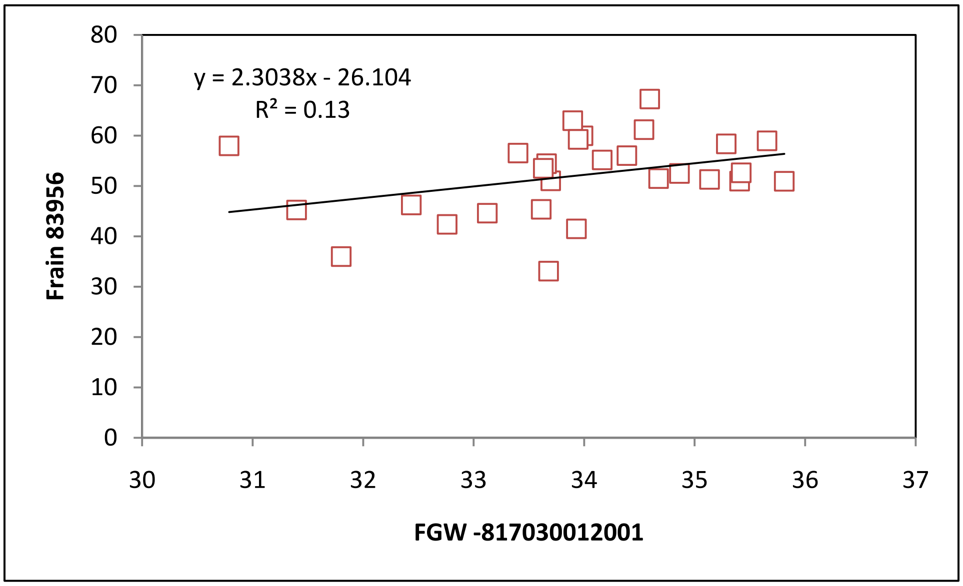
GW Station -72215001: levels very certain trending downward; no correlations detected.



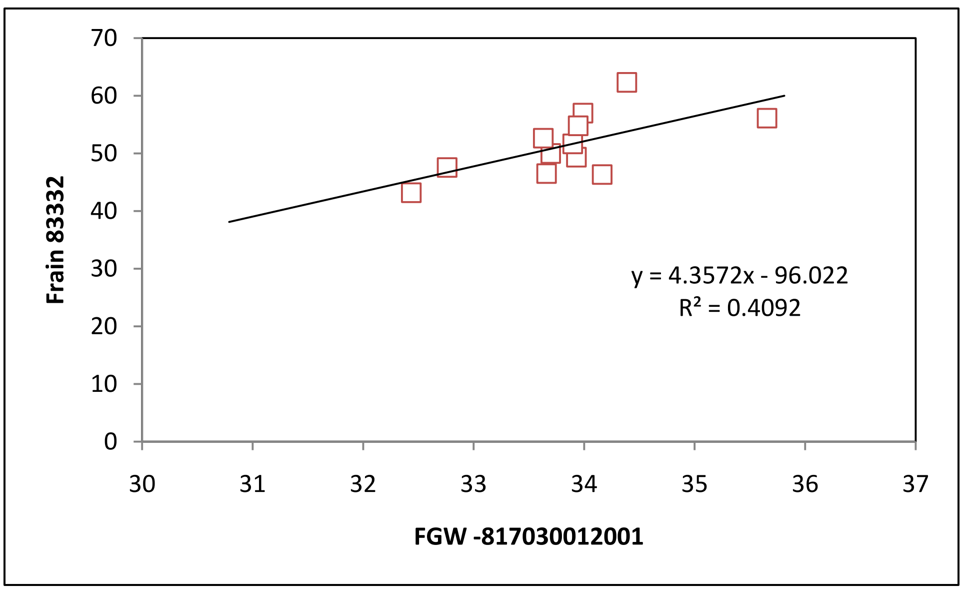
Rainfall units = inches; Groundwater level units = depth in feet relative to NGVD29



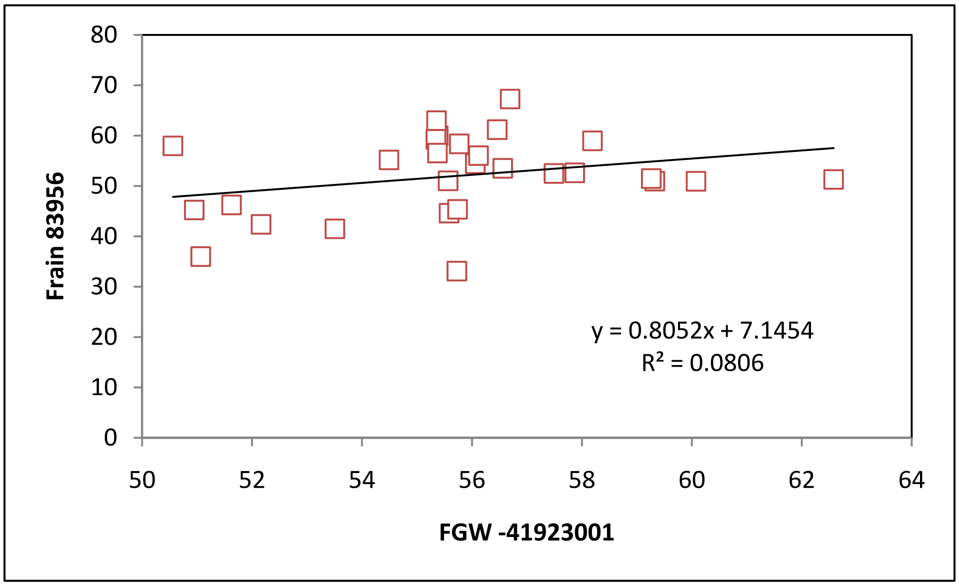
GW Station—81703001: levels probably trending downward; no correlation with 83956; probably correlated with 83332.



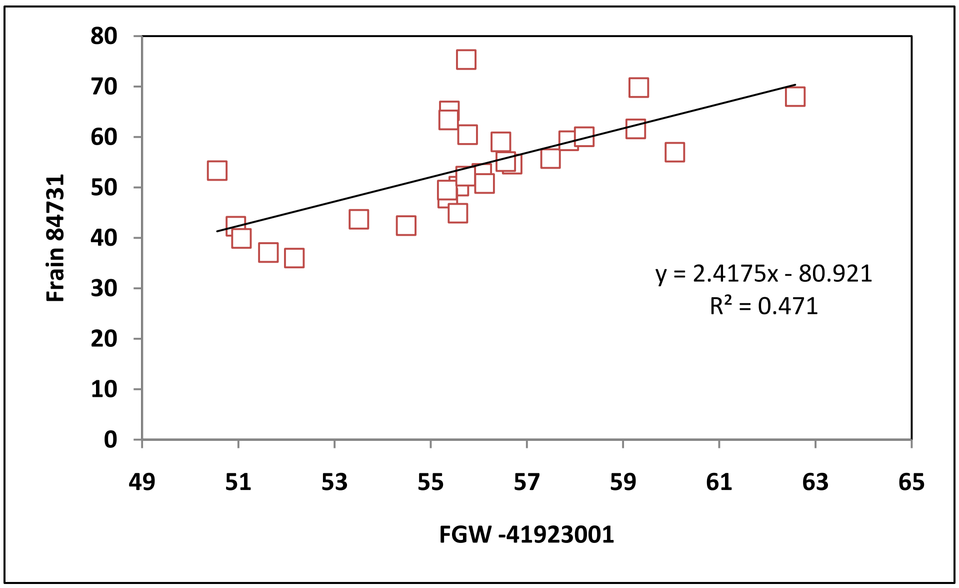
Rainfall units = inches; Groundwater level units = depth in feet relative to NGVD29



GW Station -41923001: levels probably trending downward; no correlation with 83956; probably correlated with 84731.

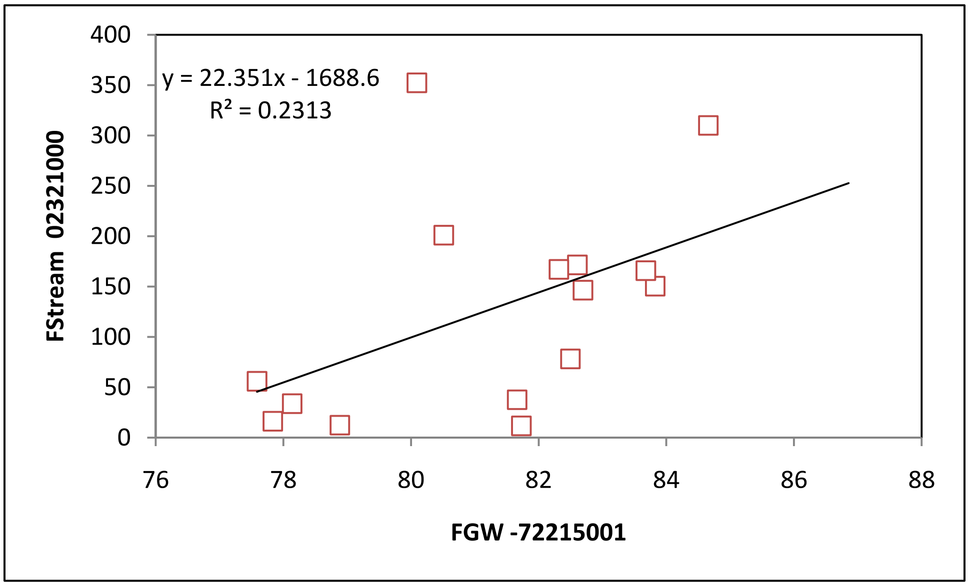


Rainfall units = inches; Groundwater level units = depth in feet relative to NGVD29

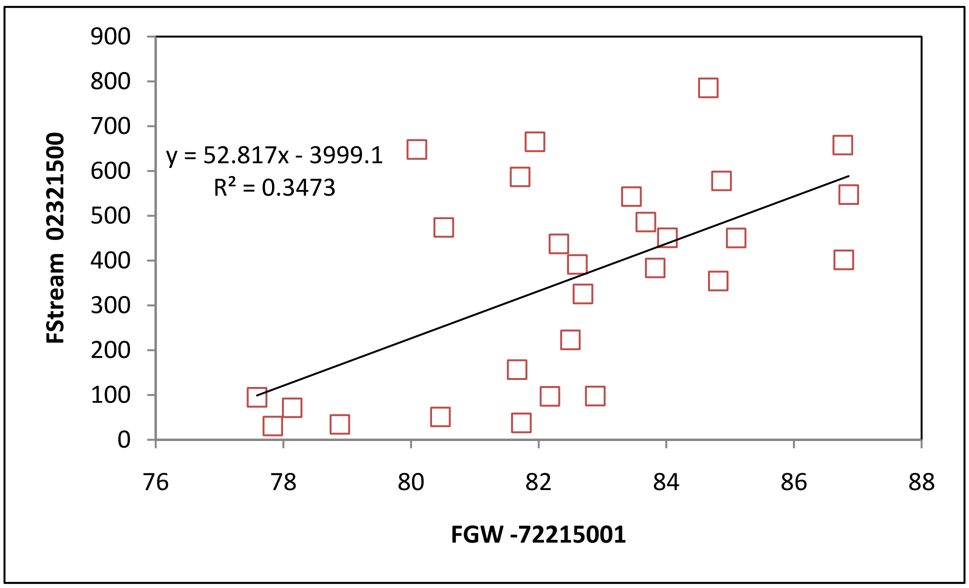


Appendix 18.2 Florida Groundwater vs. Streamflow

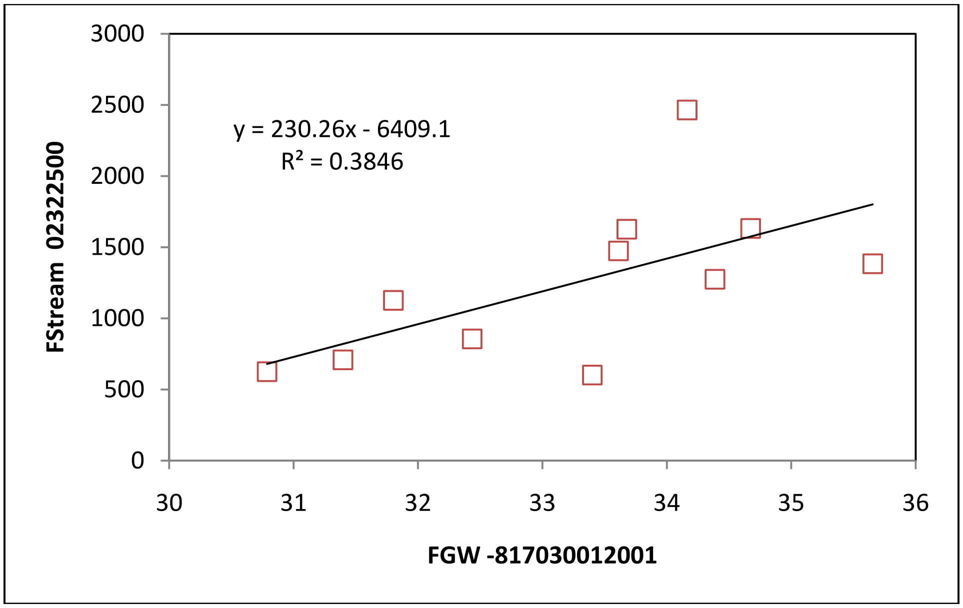
GW Station -72215001: levels very certain trending downward; probably correlated with 02321000 and 02321500.



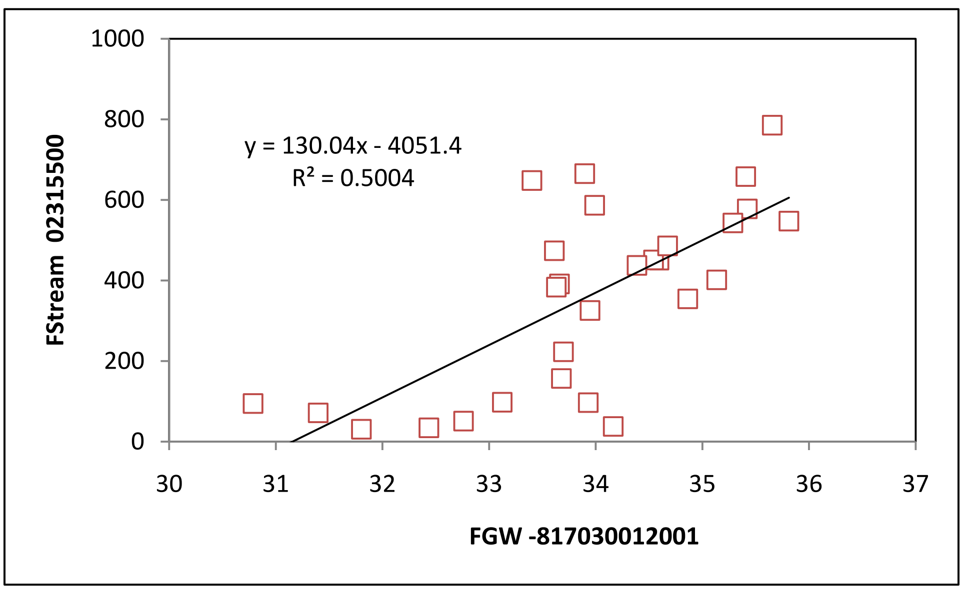
Streamflow = cubic feet per sec; Groundwater level units = depth in feet relative to NGVD29



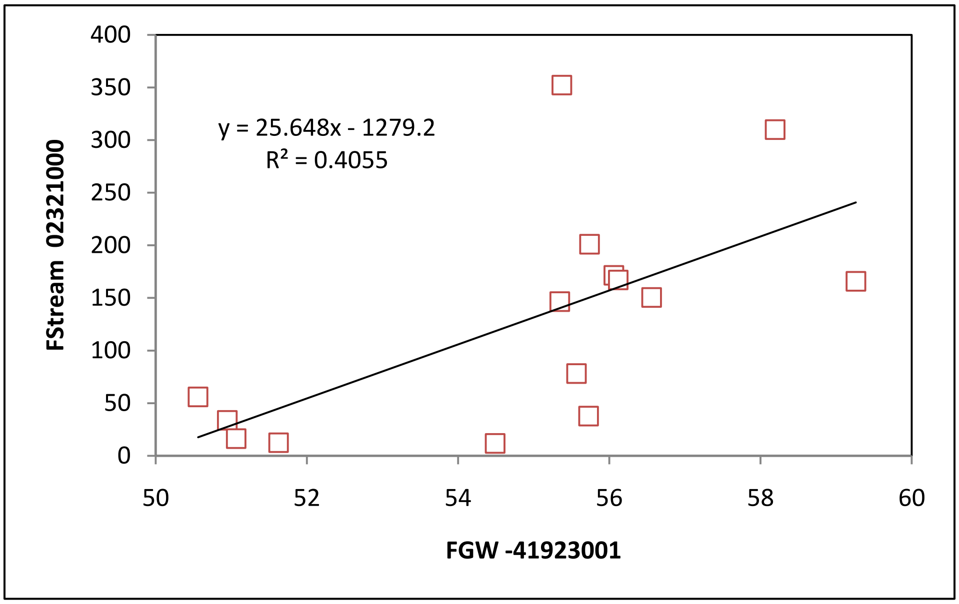
GW Station – 81703001: levels probably trending downward; probably correlated with 02322500 and 02321500.



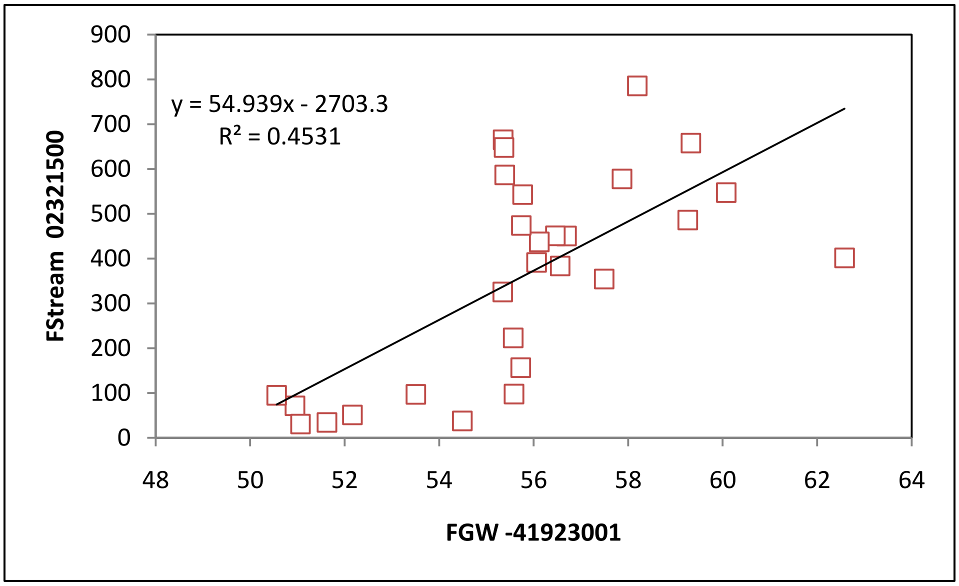
Streamflow = cubic feet per sec; Groundwater level units = depth in feet relative to NGVD29



GW Station -41923001: levels probably trending downward; probably correlated with 02321000 and 02321500.

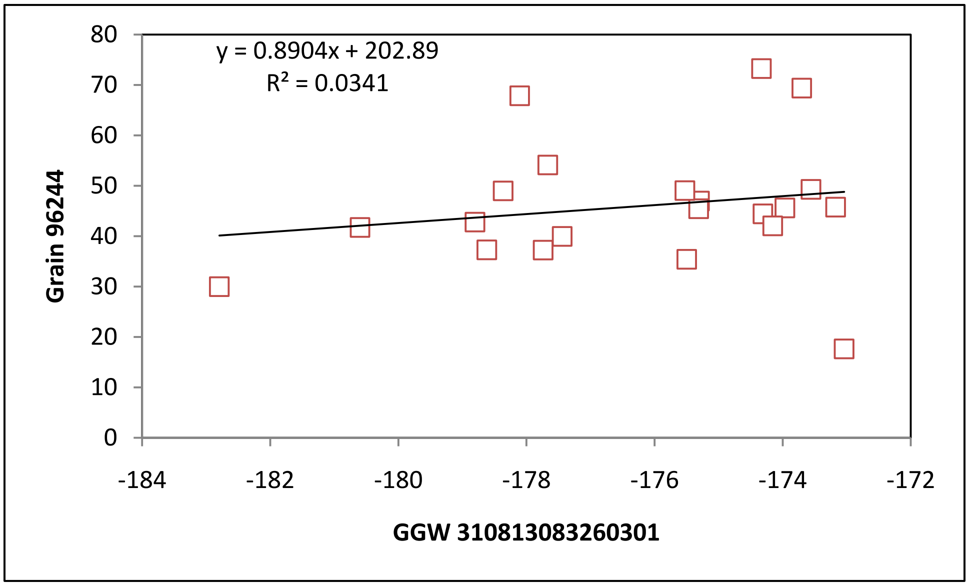


Streamflow = cubic feet per sec; Groundwater level units = depth in feet relative to NGVD29

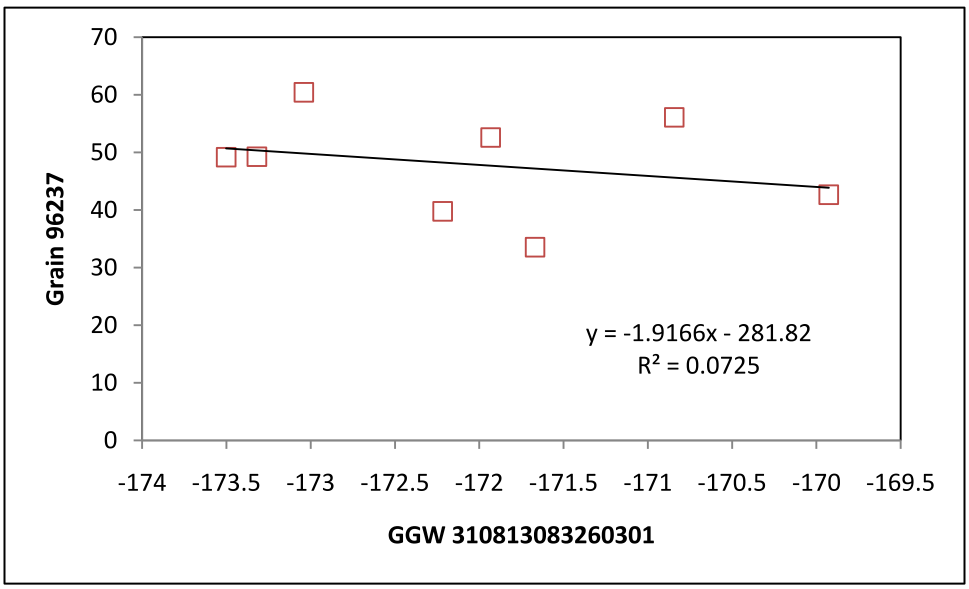


Appendix 18.3 Georgia Groundwater vs. Rainfall

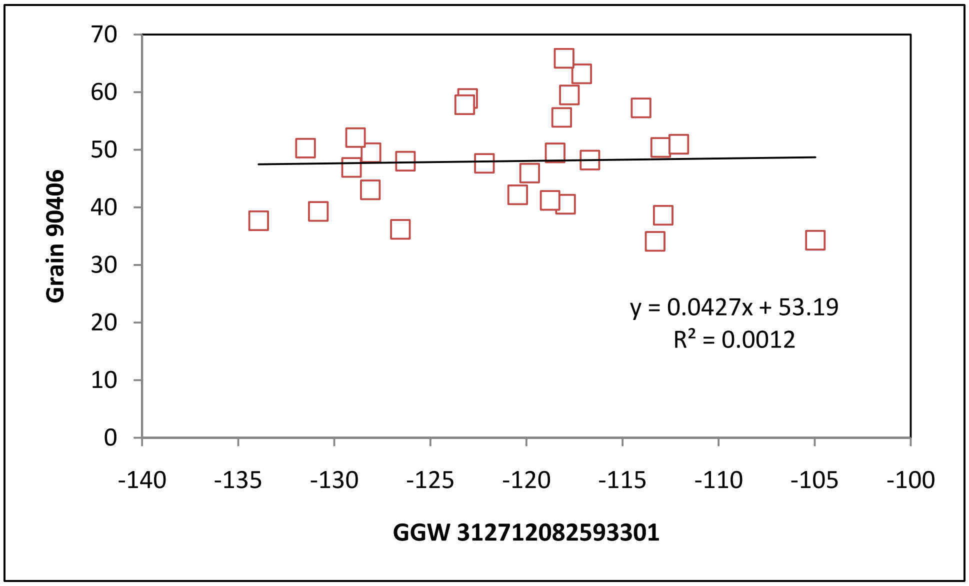
GW Station 310813083260301: levels very certain trending downward; no correlations detected.



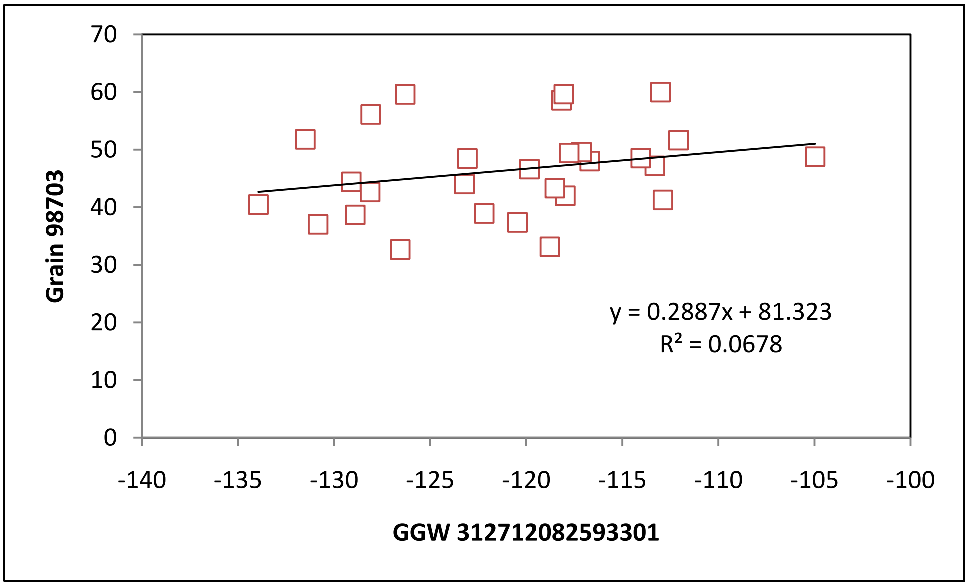
Rainfall units = inches; Groundwater level units = feet relative to land surface



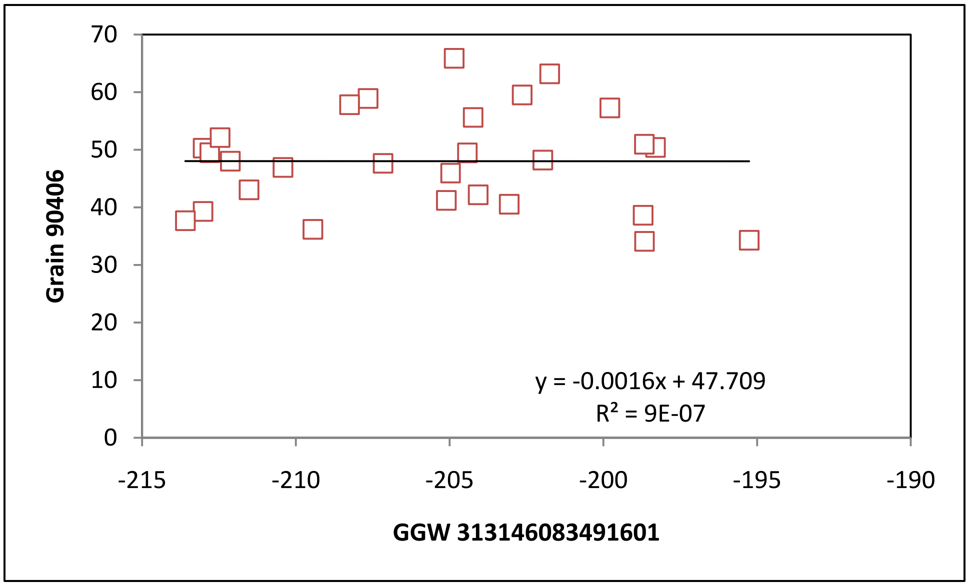
GW Station 312712082593301: levels very certain trending downward; no correlations detected.



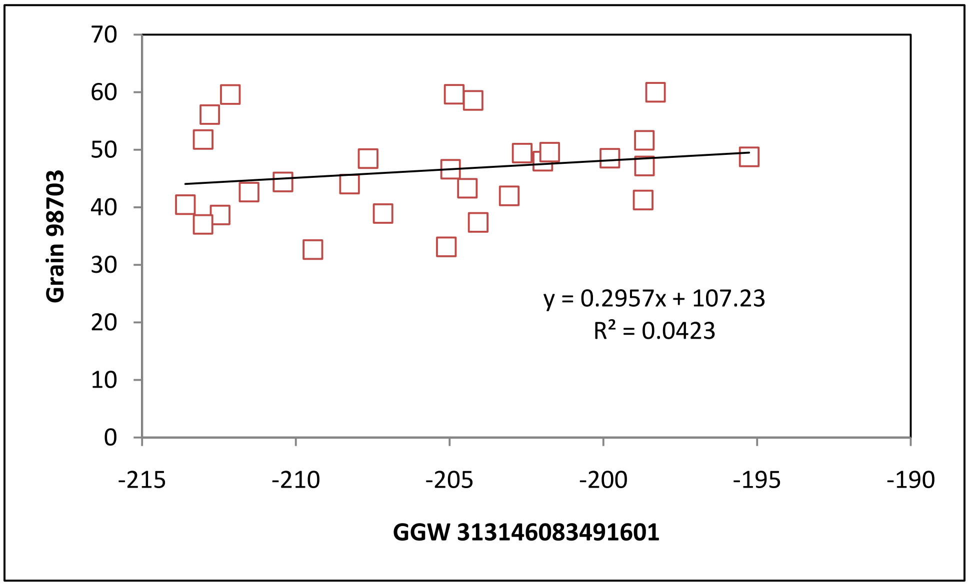
Rainfall units = inches; Groundwater level units = feet relative to land surface



GW Station 313146083491601: levels very certain trending downward; no correlations detected.

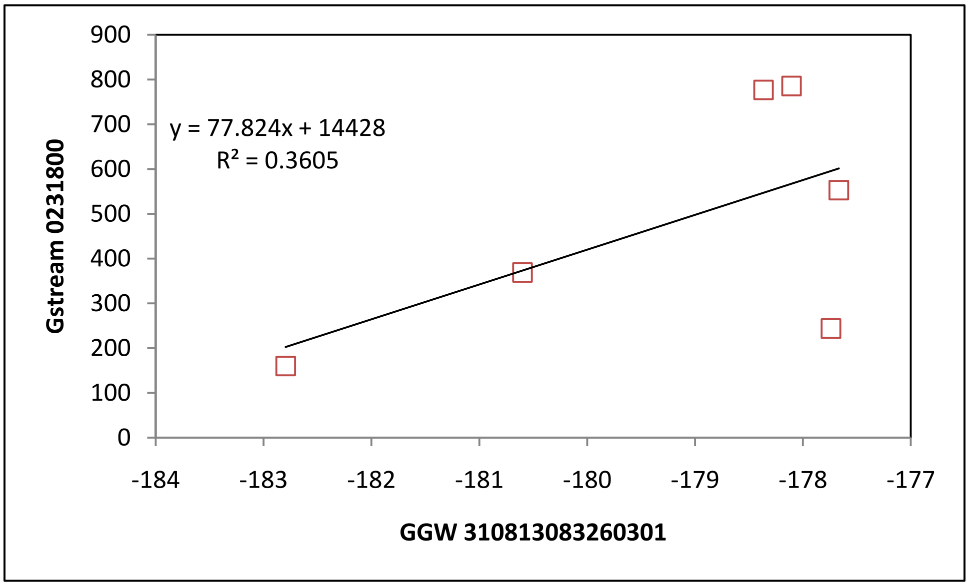


Rainfall units = inches; Groundwater level units = feet relative to land surface

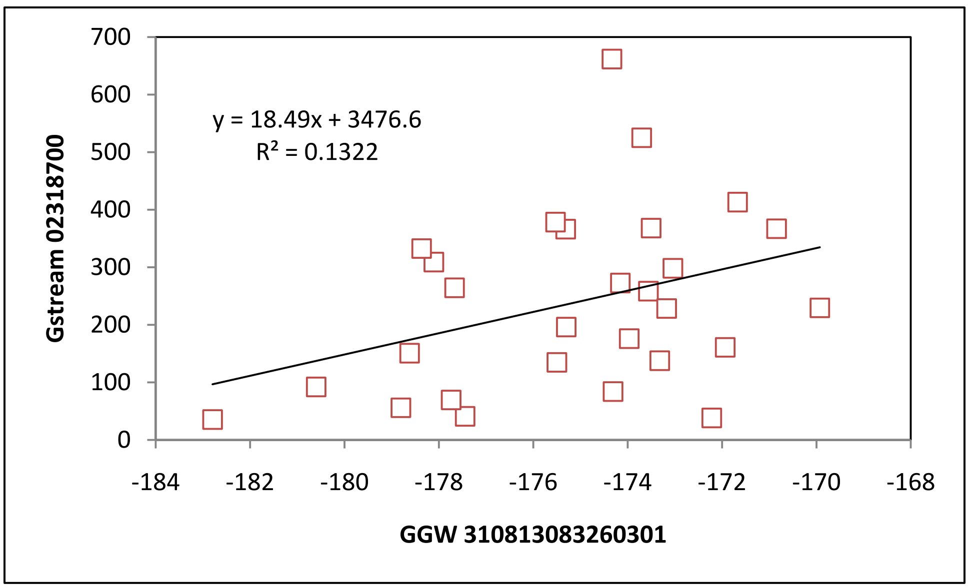


Appendix 18.4 Georgia Groundwater vs. Streamflow

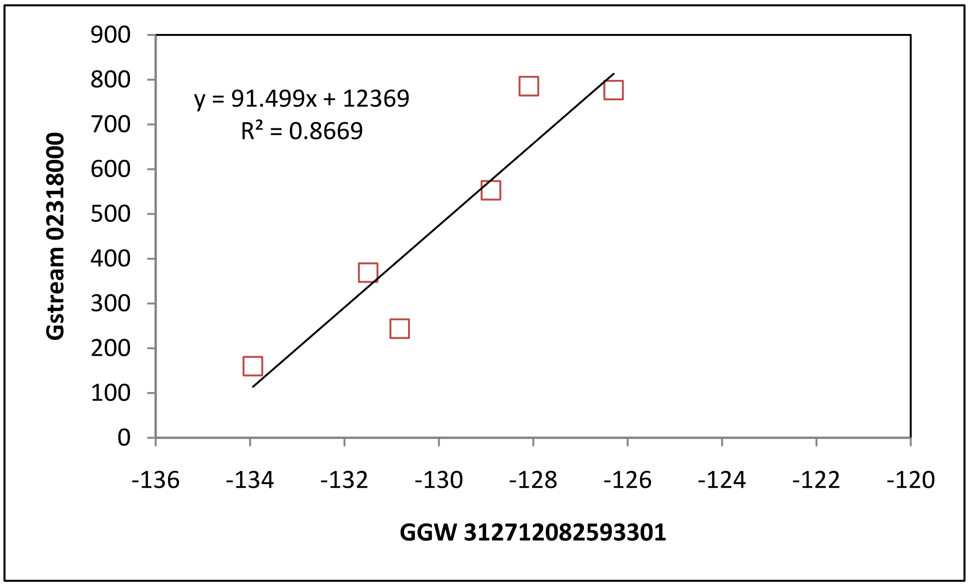
GW Station 310813083260301: levels very certain trending downward; no correlations detected.



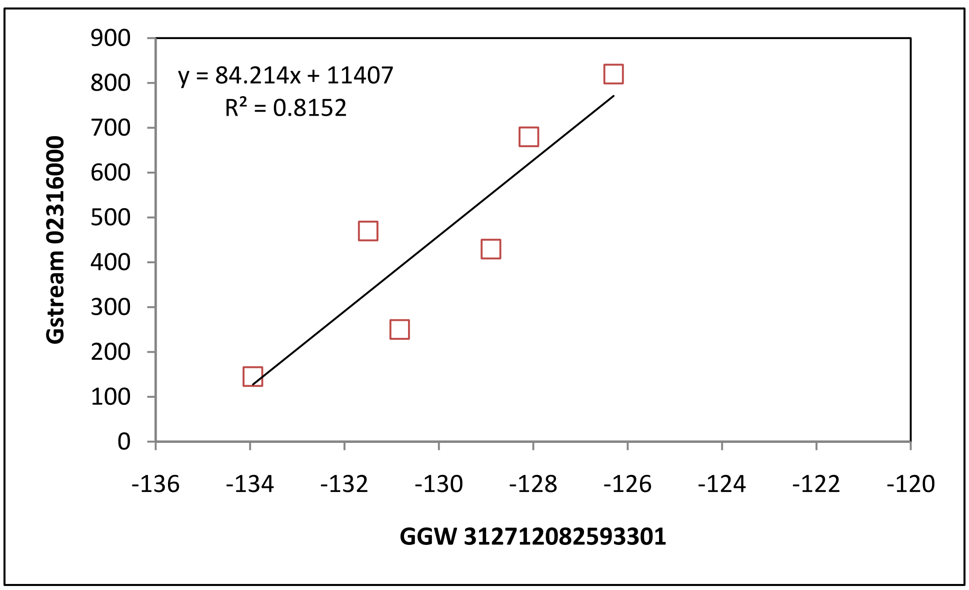
Streamflow units = cubic feet per sec; Groundwater level units = feet relative to land surface



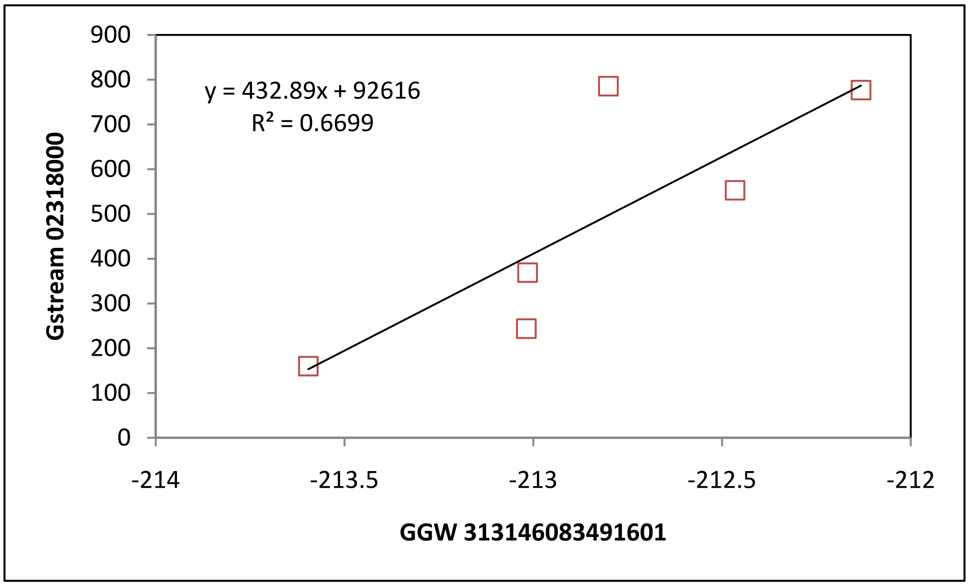
GW Station 312712082593301: levels very certain trending downward; probably correlated with 02318000 and 02316000.



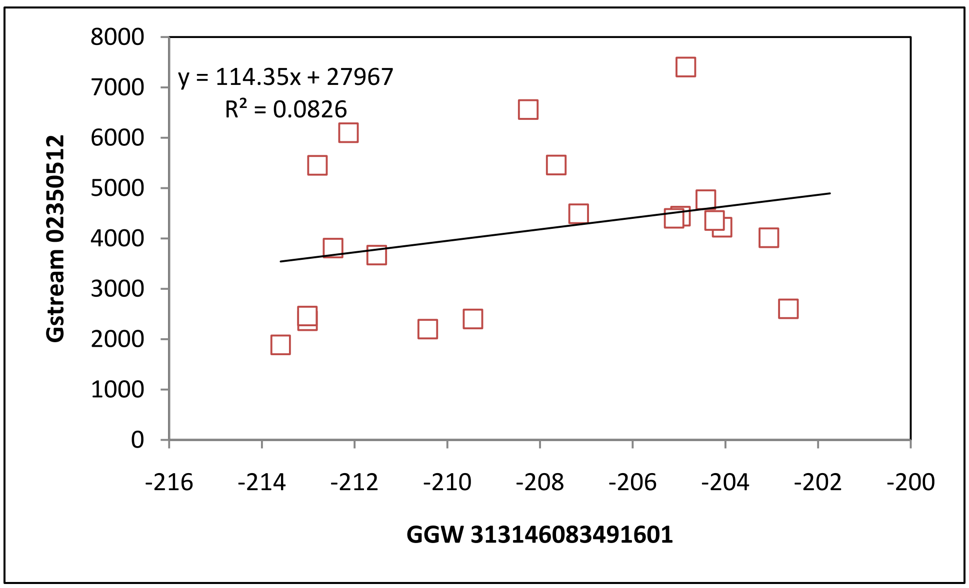
Streamflow units = cubic feet per sec; Groundwater level units = feet relative to land surface



GW Station 313146083491601: levels very certain trending downward; probably correlated with 02318000 but no correlation detected with 02350512.



Streamflow units = cubic feet per sec; Groundwater level units = feet relative to land surface



Appendix 19: Groundwater Stations Cluster Assignments

Following is a summary of 102 Groundwater level stations in Florida and Georgia and which clusters they were assigned to in the agglomerative heirarchical cluster analysis (AHCA). Map Number refers to mapped station locations in report Figures 9.2, 9.3 and 9.4.

Groundwater level stations and cluster assignments.

Map Number	Source	Station ID	Significant	2-Cluster	3-Cluster	4-Cluster
1	SRWMD	-111811001	NT	1	1	4
2	SRWMD	-092307001	W	1	1	4
3	SRWMD	-081926001	NT	1	1	4
4	SRWMD	-081703001	NT	1	1	4
5	SRWMD	-072215001	VC	1	1	4
6	SRWMD	-072132001	NT	1	1	4
7	SRWMD	-061734001	NT	1	1	3
8	SRWMD	-061629001	NT	1	1	3
9	SRWMD	-061114001	W	1	3	2
11	SRWMD	-051933001	NT	1	1	4
12	SRWMD	-051819001	NT	1	1	4
13	SRWMD	-051428004	W	1	1	3
14	SRWMD	-051311001	W	1	1	3
15	SRWMD	-041923001	VC	1	1	3
16	SRWMD	-041705001	NT	1	1	4
17	SRWMD	-041625001	NT	1	1	4
18	SRWMD	-041329001	NT	1	1	3
19	SRWMD	-041223004	NT	1	1	3
20	SRWMD	-041014001	NT	1	1	3
21	SRWMD	-032012001	NT	1	1	3
22	SRWMD	-031908001	VC	1	1	3
23	SRWMD	-031601003	NT	1	1	3
24	SRWMD	-031232001	W	1	1	3
25	SRWMD	-031105006	NT	1	1	3
26	SRWMD	-031012001	VC	1	1	3
29	SRWMD	-021805001	PT	1	1	3
30	SRWMD	-021624001	NT	2	2	1
31	SRWMD	-021516001	NT	1	1	3
32	SRWMD	-021335001	NT	1	1	3
33	SRWMD	-012029001	VC	1	1	3
34	SRWMD	-012003001	NT	1	1	3
35	SRWMD	-011727001	NT	1	1	3
36	SRWMD	-011534001	NT	1	1	3
37	SRWMD	-011511001	NT	1	1	3
38	SRWMD	-011035001	NT	1	1	3

Map Number	Source	Station ID	Significant	2-Cluster	3-Cluster	4-Cluster
39	SRWMD	+010719001	W	1	1	3
40	SRWMD	+011316001	NT	1	1	3
41	SRWMD	+011422007	NT	1	1	3
42	SRWMD	+011608001	NT	1	1	3
43	SRWMD	+021002001	NT	1	1	3
44	SRWMD	+021125001	NT	1	1	3
45	SRWMD	+021432001	NT	1	1	3
46	SRWMD	-102006001	PW	1	1	4
47	SRWMD	-101722001	PW	1	1	4
48	SRWMD	-091938002	PW	1	1	3
49	SRWMD	-091607001	PW	1	1	4
50	SRWMD	-091420001	PW	1	1	3
51	SRWMD	-062102001	PW	1	1	4
52	SRWMD	+021211001	PW	1	1	3
54	SJRWMD	A-0005	NT	2	2	1
55	SJRWMD	A-0071	NT	2	2	1
56	SJRWMD	BA0019	NT	1	1	3
57	SJRWMD	C-0120	VC	1	1	4
58	SJRWMD	P-0001	PT	1	1	4
63	SJRWMD	C-0094	VC	2	2	1
64	SJRWMD	C-0123	NT	1	3	2
65	SJRWMD	C-0128	NT	2	2	1
66	SJRWMD	C-0607	VC	2	2	1
68	SJRWMD	D-0160	VC	2	2	1
69	SJRWMD	D-0254	NT	1	3	2
70	SJRWMD	D-0424	W	2	2	1
71	SJRWMD	D-0667	VC	1	3	2
74	SJRWMD	N-0121	NT	1	3	2
77	SJRWMD	P-0172	NT	2	2	1
79	SJRWMD	P-0270	NT	1	3	2
81	SJRWMD	P-0408	NT	2	2	1
83	SJRWMD	P-0427	NT	2	2	1
84	SJRWMD	P-0450	NT	2	2	1
87	SJRWMD	P-0510	NT	2	2	1
88	SJRWMD	SJ0005	VC	1	3	2
89	SJRWMD	SJ0263	NT	1	3	2
90	SJRWMD	SJ0317	W	1	1	3
92	SJRWMD	SJ0516	NT	2	2	1
93	USGS	312712082593301	VC	1	3	2
94	USGS	310706082155101	PT	1	1	3
95	USGS	304942082213801	NT	1	1	3
96	USGS	313146083491601	VC	1	3	2
97	USGS	310813083260301	VC	1	3	2

Map Number	Source	Station ID	Significant	2-Cluster	3-Cluster	4-Cluster
98	USGS	314330084005402	PW	1	1	3
99	USGS	304949083165301	PW	2	2	1
102	USGS	303939081312601	NT	2	2	1
105	USGS	295357081294301	VC	2	2	1
106	USGS	302724081244801	NT	1	3	2
108	USGS	301537081441901	NT	2	2	1
109	USGS	302227081435001	NT	1	1	3
113	USGS	300834081421301	NT	1	1	3
115	USGS	295713081203401	NT	1	3	2
117	USGS	302538081253101	VC	1	3	2
118	USGS	300717081381001	VC	1	3	2
119	USGS	300649081485901	VC	1	1	3
120	USGS	301617081421601	NT	2	2	1
122	USGS	302608081354903	W	2	2	1
123	USGS	302608081354902	VC	2	2	1
125	USGS	302608081354901	PT	2	2	1
126	USGS	301551081415701	NT	2	2	1
127	USGS	301844081403801	VC	2	2	1
128	USGS	302416081522601	NT	2	2	1
129	USGS	302550081331501	PT	1	3	2
130	USGS	302416081522602	NT	1	1	3
131	USGS	304756081311101	NT	2	2	1

*: VC = Very Certain, PT = Probably Trend, W = Warning, NT = No Trend, PW = Piecewise