

TECHNICAL PUBLICATION SJ 88-7
WATER WITHDRAWALS, USE AND TRENDS
IN THE ST. JOHNS RIVER
WATER MANAGEMENT DISTRICT: 1986

By

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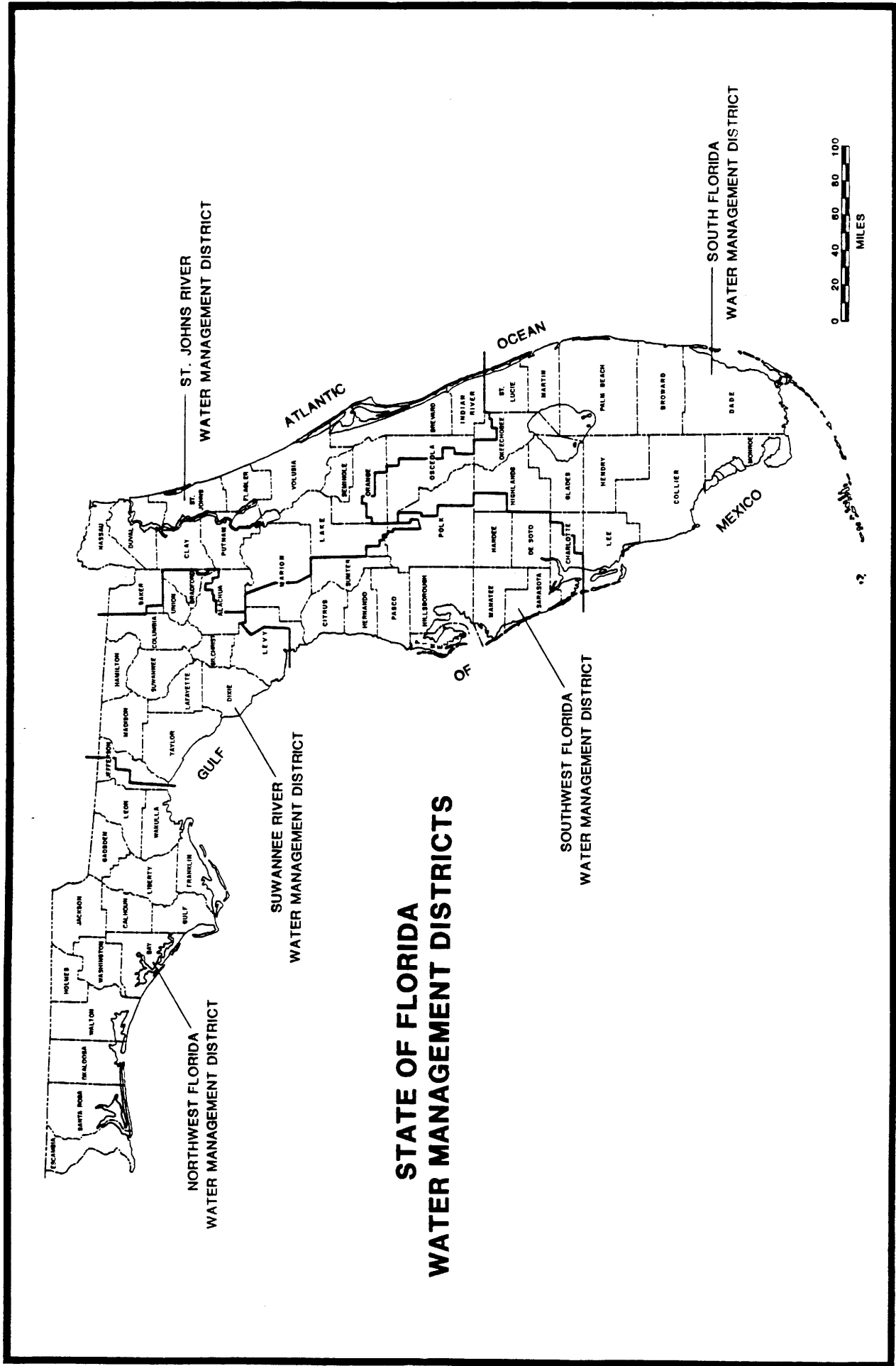


Figure 1 Water Management Districts of Florida

INTRODUCTION

The St. Johns River Water Management District (SJRWMD) is located in northeast and east central Florida and is one of five water management districts within the state (Figure 1). The major objective of the District is to protect and manage the water resources within its geographic area of responsibility. Like other areas in the state, SJRWMD is experiencing growth in population, tourism and agriculture. All of these increases result in additional demands for water.

The purpose of this report is to provide an assessment of water withdrawals and use in the SJRWMD for 1986. This assessment will not only show changes in the quantities of water withdrawn but will also indicate trends in use and will provide the data required for establishing water budgets and water use projections. This data has been published annually by the district since 1978.

Water use is shown for fresh ground and surface water sources along with total fresh water use. Reclaimed water use (reuse) is also presented in this report. Water use is compiled for the following categories: public supply; domestic self-supplied; commercial/industrial self-supplied (including institutional/ recreational self-supplied); agricultural irrigation (including livestock use); self-supplied power generation (thermoelectric); heat pump/air conditioning; and free-flowing wells. Water use is compiled for all of the following counties: Brevard, Clay, Duval, Flagler, Indian River,

Nassau, Putnam, Seminole, St. Johns, and Volusia. Water use is also compiled for those portions of Alachua, Baker, Bradford, Lake, Marion, Okeechobee, Orange, Osceola, and Polk counties which lie within SJRWMD boundaries (Figure 2).

In addition to this report, a supplemental report with detailed pumpage data is available. The supplemental report, Technical Publication SJ 88-7 Supplemental Data, shows pumpage for individual public suppliers, industries, institutions, and thermoelectric power plants. Pumpage data is shown in million gallons per month as well as total million gallons and million gallons per day (Mgal/d).

Data for public supplies, self-supplied industries, institutions, and thermoelectric power plants is collected by the SJRWMD. Agricultural water use is estimated by utilizing the modified Blaney-Criddle irrigation computer model (1), the University of Florida "AFSIRS" program (2), and SJRWMD Benchmark Farms program data in combination with the crop data supplied by the Institute of Food and Agricultural Sciences (IFAS) County Extension Office, the USDA Soil Conservation Service (SCS), the USDA Agricultural Stabilization and Conservation Services (ASCS), and the SJRWMD consumptive use permit files. The heat pump/air conditioning figures are calculated from the Brevard County well inventory list 1975-77, the Volusia County Vol-Data File (U.S. Geological Survey 11/20/80), conversations with Heating

- (1) SCS Technical Release No. 21, "Irrigation Water Requirements"
- (2) AFSIRS - Agricultural Field Scale Irrigation Requirement Simulation Model.

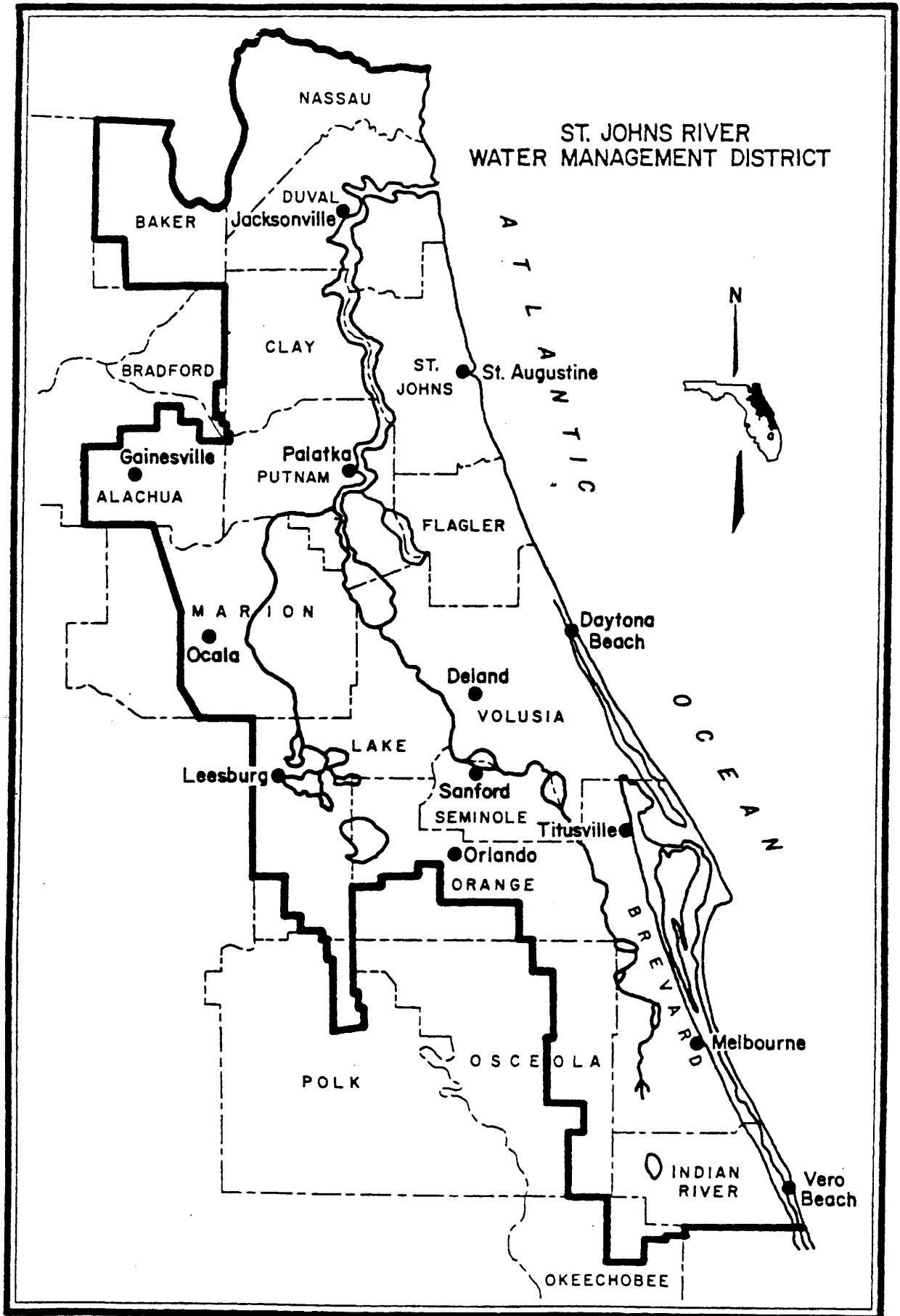


Figure 2 St. Johns River Water Management District

Ventilation Air Conditioner (HVAC) dealers in Putnam County and the District CUP files. Residential use for this category is calculated for only three counties: Brevard, Volusia, and Putnam. Data for the remaining 16 counties is presently being inventoried. Non-residential use (industrial and commercial) was collected through the CUP files for all counties. Data for the free-flowing well inventory is collected by the District in compliance with the requirements of the Florida Water Quality Assurance Act of 1983.

Water withdrawals and water use data are expressed in million gallons per day (Mgal/d). Withdrawal and use values are the average daily quantities used, as derived from annual use data, and are rounded to whole numbers. The tables in this report show values in Mgal/d and are reported to two places to the right of the decimal or to 10,000 gallons per day. The reader is cautioned that the accuracy of these values varies from category to category. Data for public supply withdrawals is considered reliable to the nearest 10,000 gallons per day because it is derived from metered pumpage. Data for agricultural withdrawals is considered less reliable because it is estimated.

The reader is also cautioned that some differences exist between methodologies used by the U.S. Geological Survey and SJRWMD in collecting and interpreting water use data for 1975 and 1985, but generally the data is comparable. For this reason comparisons were also made with SJRWMD data between 1980, 1985 and 1986.

DEFINITIONS

Definitions of some of the terms used in this report are as follows:

Withdrawal - The amount of water withdrawn from a source (ground or surface, fresh or saline). This is equivalent to "intake", "water diversion" or "pumpage", terms commonly associated with industrial, agricultural irrigation, and public supply uses, respectively.

Water Use - Describes how and where the water was used not the quantity and location of the withdrawal.

Potable Water - According to the Florida Department of Environmental Regulation, is any water with less than 250 mg/l of chlorides or 500 mg/l of total dissolved solids.

Saline Water - Refers to water containing more than 1,000 milligrams per liter (mg/l) of dissolved solids. Water with dissolved solids of 1,000 mg/l or less is considered "fresh-water".

Reverse Osmosis - Refers to a process of desalination of saline water which removes chlorides or other dissolved solids from saline water to make it potable.

Supplemental Irrigation - Refers to the amount of water in addition to rainfall that is applied to produce a crop. This supplemental irrigation value (calculated in inches) includes water required to compensate for irrigation system losses.

Aquifer - Refers to a confined, semi-confined or unconfined reservoir of ground water. In the District, there are three major aquifers present. These three aquifers are the Floridan, intermediate and surficial. Within this report data for the intermediate and surficial aquifer are combined.

WATER WITHDRAWALS, USE AND TRENDS IN 1986

St. Johns River Water Management District

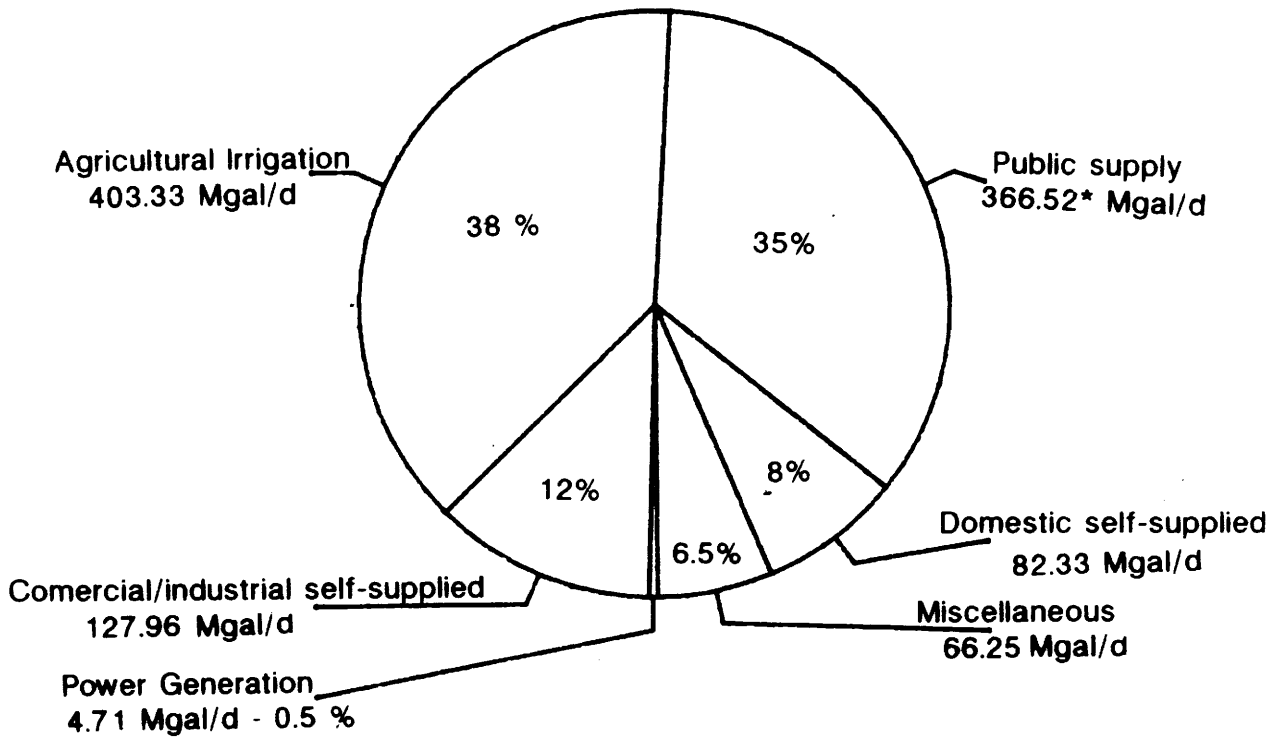
In 1986, the total amount of water withdrawn in the SJRWMD was 2,754.29 Mgal/d, of which 1,430.72 Mgal/d, or 52 percent, was freshwater and 1,323.57 Mgal/d was saline. Ground water accounted for more than 73 percent of the freshwater withdrawn and surface water accounted for more than 99 percent of the saline withdrawals. The Floridan aquifer supplied more than 90 percent of the ground water withdrawn in the District for 1986.

Agricultural irrigation accounted for the majority of the fresh ground water and fresh surface water withdrawals for 1986. This category accounted for 38 percent of the ground water and 57 percent of the total fresh surface water used within the District (Figure 3). The second largest category was public supply using 35 percent of the total fresh ground water and 4 percent of the total fresh surface water. Other categories with substantial amounts of ground water use were commercial/industrial self-supplied (12 percent), domestic self-supplied (8 percent), and miscellaneous withdrawals which included both heat pump/air conditioning (5 percent) and free-flowing wells (1.5 percent). Thermoelectric power generation accounted for less than 1 percent (0.5 percent) of the total ground water used in 1986.

The major fresh surface water use category in 1986 was agricultural irrigation, which accounted for 57 percent of the total surface water used in the District. Thermoelectric power

St. Johns River Water Management District

GROUND WATER



* includes 1.74 Mgal/d of saline ground water.

SURFACE WATER

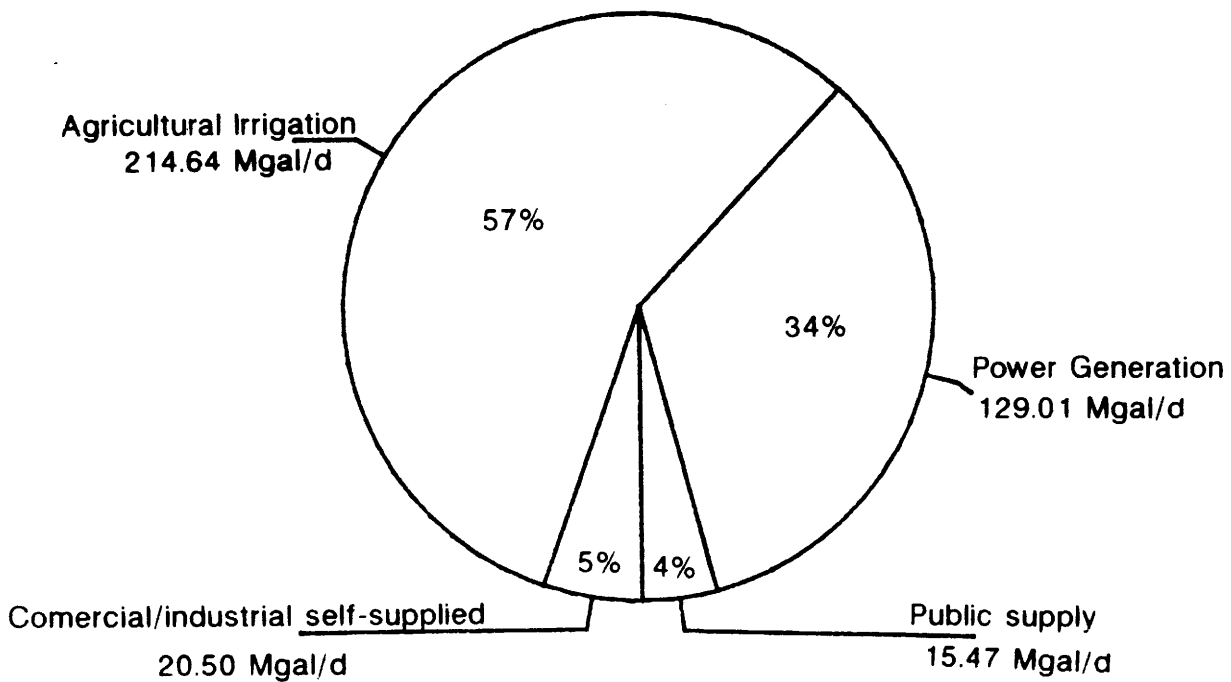


Figure 3 Fresh ground and surface water withdrawals by category: 1986

generation accounted for 34 percent of the total fresh surface water use. Commercial/industrial self-supplied (5 percent) and public supply (4 percent) accounted for the remaining 9 percent of total fresh surface water use.

The largest amount of fresh ground water withdrawn by county in 1986 was withdrawn in Brevard County (Table 1). Withdrawals of fresh ground water exceeded 100 Mgal/d in three counties with Brevard (167.72 Mgal/d) the largest, followed by Duval (153.49 Mgal/d) and Orange (148.61 Mgal/d) counties. These three counties accounted for 45 percent of the ground water withdrawals in the SJRWMD in 1986. In addition, the majority of ground water withdrawn in these three counties was withdrawn from the Floridan aquifer (Table 2).

The largest amount of fresh surface water withdrawn in 1986 by county was withdrawn in Indian River County (Table 1). Withdrawals of fresh surface water exceeded 100 mgal/d in two counties with Volusia (123.64 Mgal/d) accounting for the largest withdrawal followed by Indian River County (114.25 Mgal/d). These two counties accounted for 63 percent of the fresh surface water withdrawals in the SJRWMD in 1986.

Seasonal variations in withdrawals vary dramatically. Figure 4 shows the monthly fluctuation of total water withdrawals in 1986. The months of February, March, April and May accounted for more than 47 percent of the year's water withdrawals.

Variations in historical water use are difficult to assess primarily because of differences in data collection techniques over the years. Since 1978, water use data for the SJRWMD has

Table 1. Total water withdrawals by county : 1986
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
ALACHUA	29.72	0.14	29.86	0.00	0.00	0.00	0.00
BAKER	5.60	2.19	7.79	0.00	0.00	0.00	0.00
BRADFORD	0.34	0.00	0.34	0.00	0.00	0.00	0.00
BREVARD	167.72	26.34	194.06	0.00	1,089.21	1,089.21	0.66
CLAY	22.97	4.86	27.83	0.00	0.00	0.00	0.00
DUVAL	153.49	1.22	154.71	0.00	217.45	217.45	1.19
FLAGLER	9.42	1.33	10.75	0.00	0.00	0.00	0.00
INDIAN RIVER	62.99	114.25	177.24	0.00	16.91	16.91	0.00
LAKE	69.64	12.35	81.99	0.00	0.00	0.00	3.07
MARION	33.36	4.03	37.39	0.00	0.00	0.00	0.29
NASSAU	47.67	0.97	48.64	0.00	0.00	0.00	0.68
OKEECHOBEE	8.29	0.25	8.54	0.00	0.00	0.00	0.00
ORANGE	148.61	50.98	199.59	0.00	0.00	0.00	0.59
OSCEOLA	6.45	8.67	15.12	0.00	0.00	0.00	0.00
POLK	10.01	0.99	11.00	0.00	0.00	0.00	0.00
PUTNAM	69.08	23.81	92.89	0.00	0.00	0.00	0.00
ST. JOHNS	50.50	1.29	51.79	0.00	0.00	0.00	0.42
SEMINOLE	70.20	2.31	72.51	0.00	0.00	0.00	0.00
VOLUSIA	85.04	123.64	208.68	0.00	0.00	0.00	0.00
DISTRICT TOTALS	1,051.10	379.62	1,430.72	0.00	1,323.57	1,323.57	6.90
TOTAL GROUND		1,051.10					
TOTAL SURFACE		1,703.19					
DISTRICT TOTALS		2,754.29					

Table 2. Aquifer withdrawals by county : 1986
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

COUNTY	TOTAL GROUND	INTERMEDIATE & SURFICIAL	FLORIDAN
ALACHUA	29.72	1.75	27.97
BAKER	5.60	2.68	2.92
BRADFORD	0.34	0.02	0.32
BREVARD	167.72	28.03	139.69
CLAY	22.97	3.07	19.90
DUVAL	153.49	15.48	138.01
FLAGLER	9.42	1.98	7.44
INDIAN RIVER	62.99	16.85	46.14
LAKE	69.64	4.72	64.92
MARION	33.36	6.11	27.25
NASSAU	47.67	3.57	44.10
OKEECHOBEE	8.29	0.25	8.04
ORANGE	148.61	3.10	145.51
OSCEOLA	6.45	0.00	6.45
POLK	10.01	0.22	9.79
PUTNAM	69.08	5.48	63.60
ST. JOHNS	50.50	5.01	45.49
SEMINOLE	70.20	2.02	68.18
VOLUSIA	85.04	4.79	80.25
TOTALS	1,051.10	105.13	945.97

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

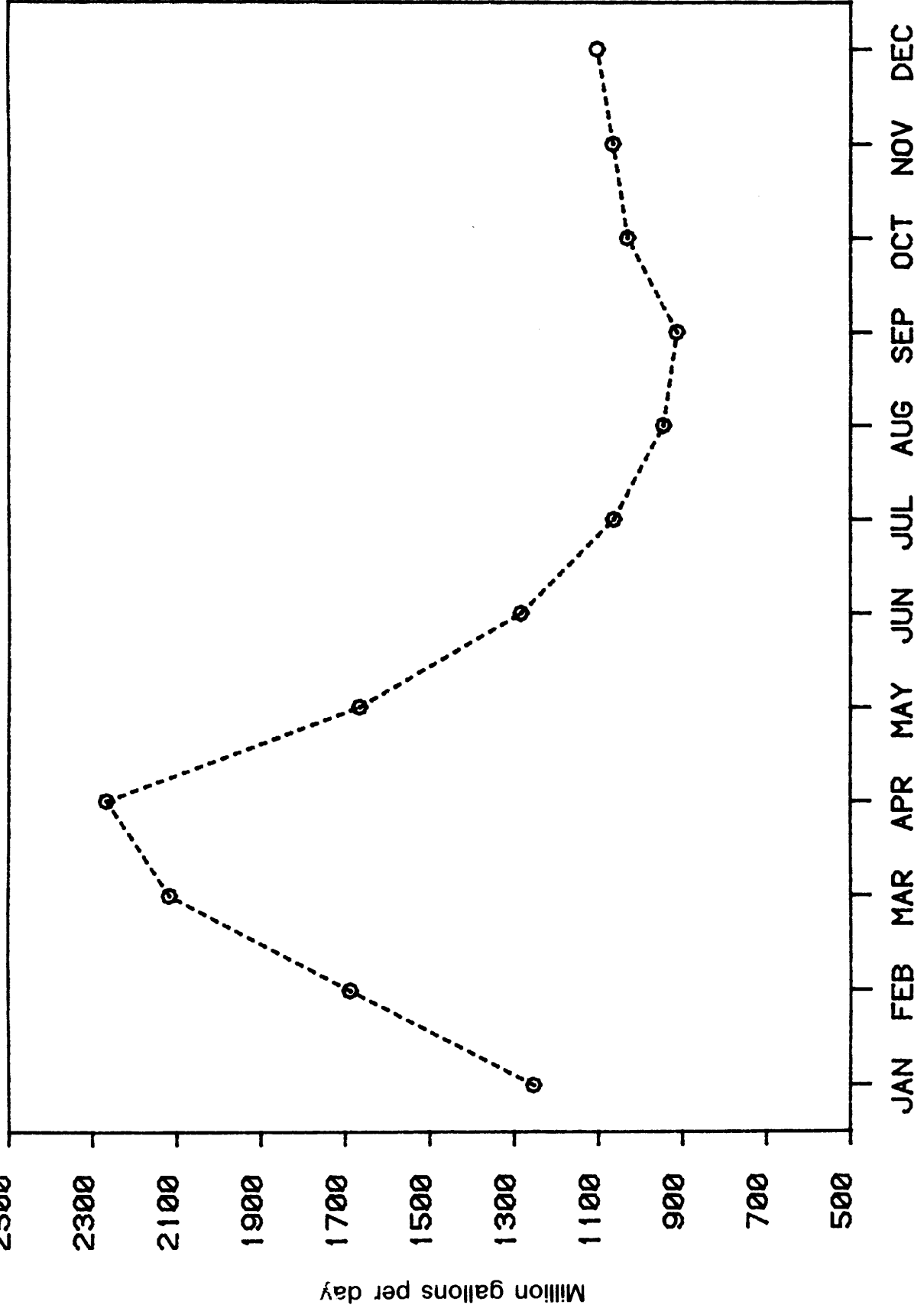


Figure 4 Monthly total freshwater withdrawals: 1986

been collected annually. Prior to 1978, water use data was available by county through the Florida Bureau of Geology for 1970, and the U.S. Geological Survey for 1975 and 1977. According to published figures (Leach, 1978), fresh water withdrawals (excluding fresh surface water withdrawn for power generation) in the SJRWMD have increased 13 percent in the 10 years between 1975 and 1985 (Table 3). Fresh water withdrawals for public supply increased 35 percent, domestic self-supplied increased 46 percent, and agricultural irrigation increased 7 percent, whereas industrial withdrawals decreased 11 percent and power generation decreased 76 percent between 1975 and 1985 (Figure 5).

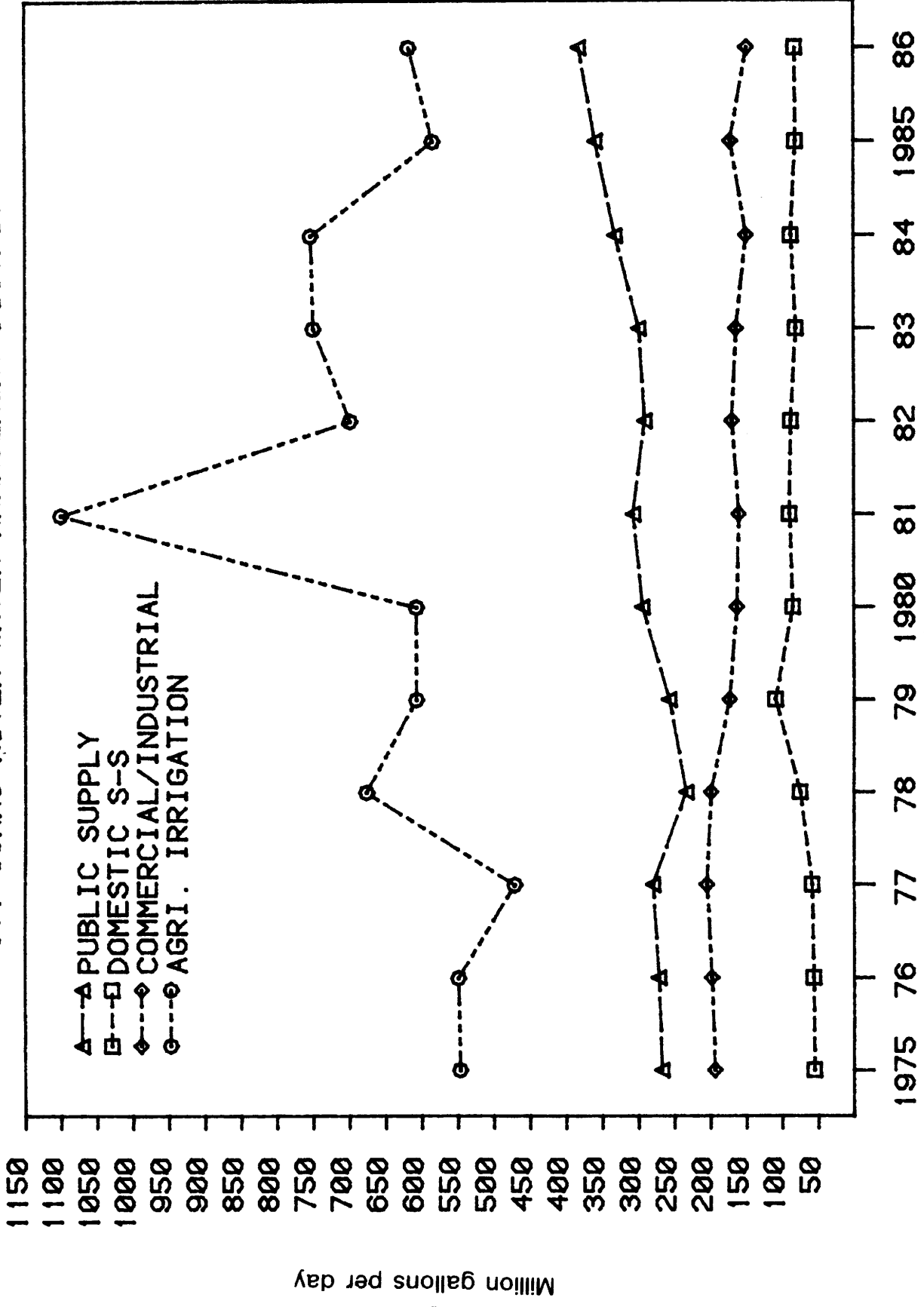
Specifically, fresh ground water withdrawals for the District increased 49 percent between 1975 and 1985. This increase of more than 348 Mgal/d in the 10 years between 1975 and 1985 indicates the growing importance of ground water in the District. In contrast to ground water, withdrawals of surface water (not including power generation) have decreased 45 percent between 1975 and 1985. Fresh surface water withdrawals (not including power withdrawals) decreased by 109 Mgal/d during this period. Of this 108 Mgal/d had been used for irrigation.

Table 3. Historical Total freshwater use by county
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
(All values in Million gallons per day)

COUNTY	TOTAL FRESH WATER USE BY YEAR (*)				PERCENT CHANGE BETWEEN		
	1975	1980	1985	1986	1975&1985	1980&1985	1985&1986
ALACHUA	23.02	28.18	27.10	28.85	18%	-4%	6%
BAKER	3.04	5.41	7.63	7.79	151%	41%	2%
BRADFORD	0.03	0.09	0.33	0.34	1000%	267%	3%
BREVARD	92.16	195.49	177.28	172.02	92%	-9%	-3%
CLAY	18.25	18.65	26.57	27.47	46%	42%	3%
DUVAL	154.01	140.15	158.61	145.48	3%	13%	-8%
FLAGLER	9.11	11.64	9.87	10.74	8%	-15%	9%
INDIAN RIVER	305.89	153.51	151.86	176.51	-50%	-1%	16%
LAKE	86.94	127.88	72.54	81.50	-17%	-43%	12%
MARION	24.05	37.27	32.94	35.68	37%	-12%	8%
NASSAU	63.09	54.55	47.07	48.63	-25%	-14%	3%
OKFEEHOBEE	11.14	5.43	8.44	8.54	-24%	55%	1%
ORANGE	95.43	131.90	172.41	176.11	81%	31%	2%
OSCEOLA	5.79	3.00	8.00	15.12	38%	167%	89%
POLK	3.41	15.98	11.03	11.00	223%	-31%	-0%
PUTNAM	61.73	69.72	80.53	77.42	30%	16%	-4%
ST. JOHNS	35.94	31.24	51.29	50.82	43%	64%	-1%
SEMINOLE	32.07	60.54	68.72	72.39	114%	14%	5%
VOLUSIA	37.26	60.66	85.42	84.34	129%	41%	-1%
TOTALS	1,062.36	1,151.29	1,197.64	1,230.75	13%	4%	3%

* Does not include fresh surface water use for thermoelectric power generation and miscellaneous ground water withdrawals.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT



(note: 1976 data was estimated)

Figure 5. Historical freshwater withdrawals by category

WATER WITHDRAWALS, USE AND TRENDS BY CATEGORY

Public Supply

The public supply category includes water withdrawn by both public and private water suppliers. According to the Florida Department of Environmental Regulation (FDER), any system serving 25 people or more is considered to be a public or private water supplier. For this report, those utilities that served 400 people or more, or withdrew more than 0.01 Mgal/d were inventoried.

In 1986, 180 public and private utilities were inventoried in the SJRWMD. Total public-supplied water withdrawals amounted to 381.99 Mgal/d, of which 95 percent was ground water. Of that total, 1.71 Mgal/d was saline water withdrawn for treatment by reverse osmosis or diluted for potable use. Only one utility (City of Melbourne) within the District withdrew surface water in 1986. The Floridan aquifer, which underlies the entire District, supplied more than 95 percent (349.22 Mgal/d) of the ground water withdrawn for public supply. The remainder of public ground water supplies was withdrawn from the surficial or intermediate aquifers.

Water withdrawals in Florida often fluctuate seasonally because of variations in temperature and precipitation affect demand. Public-supplied withdrawals are no exception. Public-supplied withdrawals within the SJRWMD fluctuated from a high in May to a low in January in 1986 (Figure 6). This fluctuation of almost 164 Mgal/d relates to seasonal differences in residential demand, primarily for lawn irrigation and tourism.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

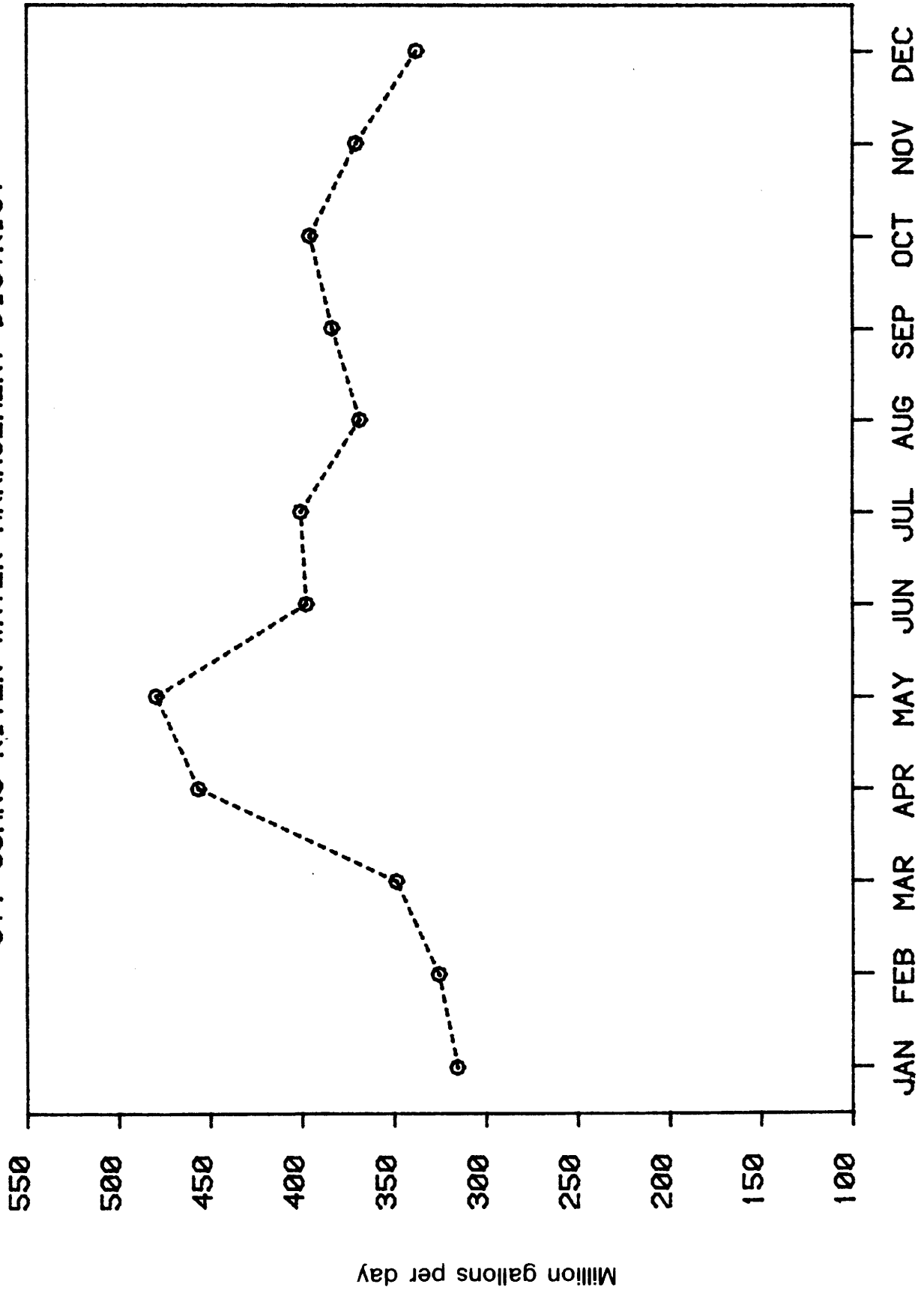


Figure 6 Monthly Public supply freshwater withdrawals: 1986

Public-supplied water was used for all of the major use categories in Florida in 1986. These categories include: domestic (residential), commercial, industrial, and other (irrigation and power generation). In addition to these four categories, water use is also shown for utility use which includes fire fighting, water lost to leakage, and system maintenance. Domestic uses, which include indoor and outdoor residential uses, accounted for 70 percent of the use of public-supplied withdrawals (Figure 7). This number was derived from information collected as part of the consumptive use permitting process.

The overall public supply per capita for the District in 1986 was 165 gallons per day (gpd). This value includes public-supplied, commercial, and industrial water use as well as residential uses and utility water use (Figure 7). However, the average quantity of water used solely for domestic purposes in 1986 was 116 gpd.

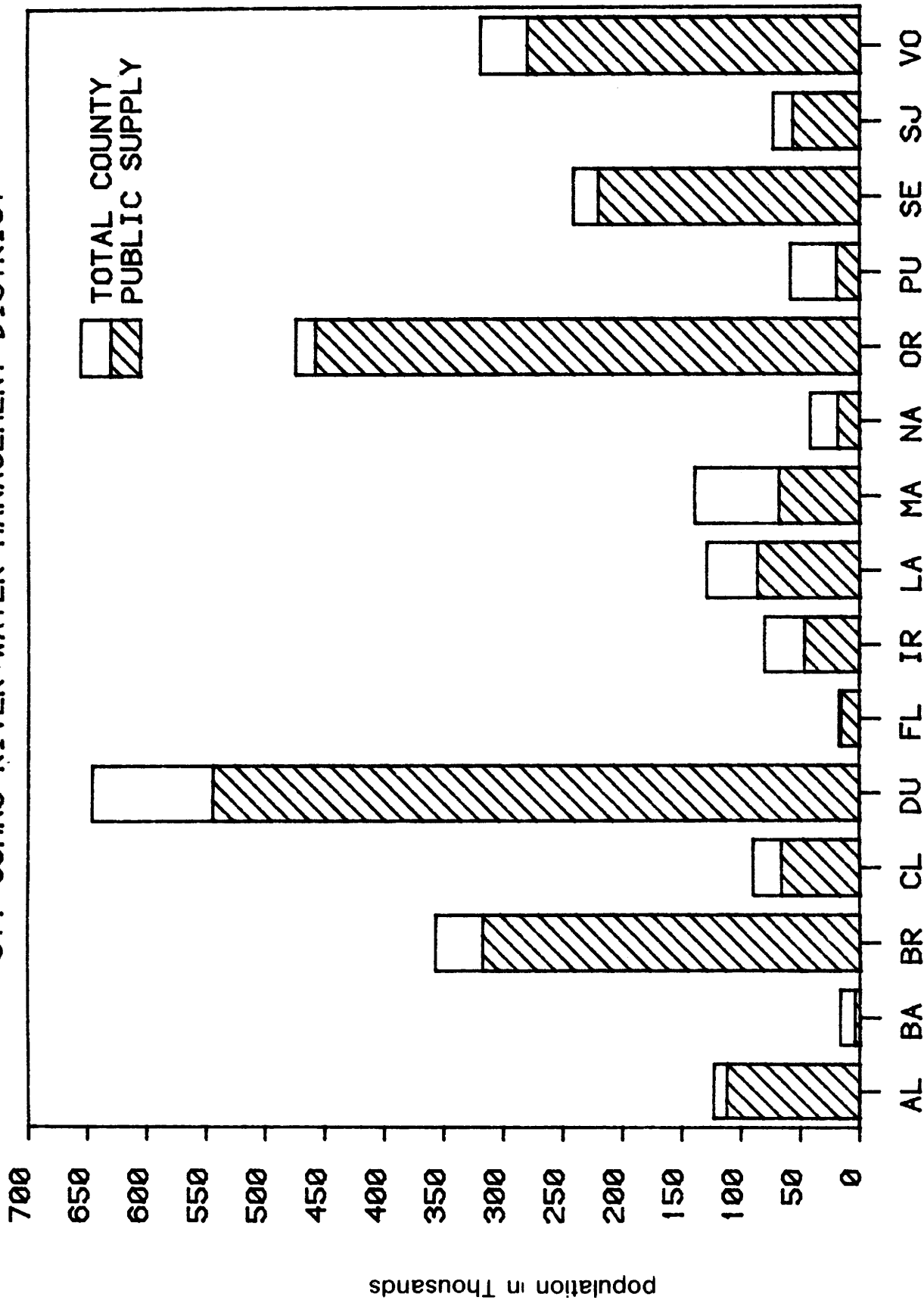
Orange (108.07 Mgal/d) and Duval (89.20 Mgal/d) counties were the counties with the largest public supply water withdrawals (Table 4). Total water withdrawn for public supply in Orange County totaled 132.11 Mgal/d, of which 108.07 Mgal/d was withdrawn in the St. Johns River Water Management District and 24.04 Mgal/d was withdrawn in the South Florida Water Management District. Orange County's total also includes 22.47 Mgal/d withdrawn for the City of Cocoa's (Brevard County) public supply system. Duval County's total includes the District's

single largest public supplier, the City of Jacksonville, which accounted for 58.23 Mgal/d.

Duval (544,394) and Orange (458,061) counties also have the largest number of people served by public supply systems (Figure 8). Total population served by the 180 public or private suppliers inventoried accounted for 82 percent (2,312,779) of the District's population.

Public-supplied withdrawals have increased by 35 percent between 1975 and 1985 while the population in the District has increased more than 37 percent in the same period. The majority of the increase in public-supplied withdrawals have occurred in Orange, Seminole, and Brevard counties over the ten year period from 1975-1985 (Table 5). If the District's population reaches 4 million by the year 2000 as predicted (Smith and Sincich, 1987), and public supply systems continue to supply approximately 82 percent of the population, public supply withdrawals will increase by an additional 165 Mgal/d.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT



(note: Bradford, Okeechobee, Osceola, and Polk counties are too small to depict)

Figure 8. County population and population served by public supply in 1986

Table 5. Historical Public Supply freshwater use by county
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

COUNTY	TOTAL FRESH WATER USE by YEAR				PERCENT CHANGE BETWEEN	
	1975	1980	1985	1986	1975&1985	1980&1985
ALACHUA	14.08	16.32	19.57	20.01	39%	20%
BAKER	0.54	0.58	0.60	0.63	11%	3%
BRADFORD	0.00	0.00	0.00	0.03	0%	0%
BREVARD	27.12	37.95	45.40	47.53	67%	20%
CLAY	5.01	6.12	8.40	9.23	68%	37%
DUVAL	95.42	73.25	84.86	89.20	-11%	16%
FLAGLER	0.62	1.70	2.22	2.12	258%	31%
INDIAN RIVER	4.49	7.64	8.84	10.38	97%	16%
LAKE	9.85	12.15	15.34	16.25	56%	26%
MARION	6.05	6.72	10.10	10.91	67%	50%
NA SSAU	2.40	2.58	3.04	3.12	27%	18%
OKEECHOBEE	0.00	0.00	0.00	0.00	0%	0%
ORANGE	60.80	68.15	79.84	85.60	31%	17%
OSCEOLA	0.00	0.00	0.00	0.00	0%	0%
POLK	0.00	0.00	0.08	0.10	0%	0%
PUTNAM	2.58	2.34	2.97	3.18	15%	27%
ST. JOHNS	2.67	3.50	7.01	7.28	163%	100%
SEMINOLE	10.45	25.65	34.86	38.68	234%	36%
VOLUSIA	25.06	30.22	36.40	37.74	45%	20%
TOTALS	267.14	294.87	359.53	381.99	35%	22%

Domestic Self-Supplied

Domestic self-supplied water is defined here as water provided by individual domestic wells or by small utilities (fewer than 400 residents). In 1986, an estimated 497,649 million people utilized 82.33 Mgal/d of domestic self-supplied water, all of which was ground water. This population was calculated by subtracting the number of residents served by public-supplied systems from the total county population. This withdrawal was calculated by multiplying the county per capita gpd (gallons per day) times the domestic self-supplied population for each county (Table 6). The gpd was derived by dividing the public-supplied withdrawal for each county by the population served by the public supply.

The majority of the ground water (approximately 70 percent) used for domestic self-supply is estimated to be withdrawn from the shallow surficial and intermediate aquifers throughout the District. The remaining water is estimated to be withdrawn from the Floridan aquifer. These shallow aquifers can yield sufficient water for domestic uses.

Duval County's self-supplied population, which exceeds 101,315 people, was the largest in the District in 1986. Other counties with large self-supplied populations were Marion (71,123) and Lake (42,793). These three counties also had the largest amount of water withdrawals for domestic self-supplied use (Table 6).

Domestic self-supplied withdrawals increased from 55.21 Mgal/d in 1975 to 82.33 Mgal/d in 1985 (Table 7) despite a slight decrease in population between 1975 (507,400) and 1985 (493,799). The majority of this 10 year increase in withdrawals is a result of a change in tabulation methods. In 1975 an estimated statewide per capita was used (120 gpd) versus that of the calculated overall per capita in 1985. This overall per capita accounts for a small number of self-supplied commercial and industrial users that are not included under the commercial-industrial self-supplied category in the following section.

Table 6. Domestic self-supplied population and water withdrawals by county : 1986
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

COUNTY	DOMESTIC POPULATION	GALLONS PER CAPITA	WITHDRAWALS (in Mgal/d)		
			GROUND	SURFACE	TOTAL
ALACHUA	11,449	168	1.93	0.00	1.93
BAKER	12,597	146	1.84	0.00	1.84
BRADFORD	1,360	170	0.23	0.00	0.23
BREVARD	39,509	150	5.92	0.00	5.92
CLAY	23,606	140	3.31	0.00	3.31
DUVAL	101,315	164	16.62	0.00	16.62
FLAGLER	1,985	137	0.27	0.00	0.27
INDIAN RIVER	33,482	223	7.47	0.00	7.47
LAKE	42,793	189	8.09	0.00	8.09
MARION	71,123	161	11.45	0.00	11.45
NASSAU	23,391	169	3.95	0.00	3.95
OKEECHOBEE	420	143	0.06	0.00	0.06
ORANGE	16,359	195	3.19	0.00	3.19
OSCEOLA	420	140	0.06	0.00	0.06
POLK	1,475	200	0.30	0.00	0.30
PUTNAM	39,046	165	6.44	0.00	6.44
ST. JOHNS	16,519	129	2.13	0.00	2.13
SEMINOLE	21,161	176	3.72	0.00	3.72
VOLUSIA	39,639	135	5.35	0.00	5.35
TOTALS	497,649	165	82.33	0.00	82.33

Table 7. Historical Domestic self-supplied freshwater use by county
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

COUNTY	TOTAL FRESH WATER USE by YEAR				PERCENT CHANGE BETWEEN		
	1975	1980	1985	1986	1975&1985	1980&1985	1985&1986
ALACHUA	1.92	0.54	1.72	1.93	-10%	219%	12%
BAKER	0.66	1.64	1.73	1.84	162%	5%	6%
BRADFORD	0.03	0.01	0.25	0.23	733%	2400%	-8%
BREVARD	2.70	1.44	5.62	5.92	108%	290%	5%
CLAY	1.81	3.88	2.70	3.31	49%	-30%	23%
DUVAL	7.27	20.26	15.50	16.62	113%	-23%	7%
FLAGLER	0.09	0.50	0.31	0.27	244%	-38%	-13%
INDIAN RIVER	2.80	8.51	7.29	7.47	160%	-14%	2%
LAKE	3.82	8.08	8.28	8.09	117%	2%	-2%
MARION	5.59	6.25	11.48	11.45	105%	84%	-0%
NASSAU	1.83	4.55	3.97	3.95	117%	-13%	-1%
OKEECHOBEE	0.10	0.06	0.06	0.06	-40%	0%	0%
ORANGE	5.81	3.08	4.08	3.19	-30%	32%	-22%
OSCEOLA	0.69	0.05	0.06	0.06	-91%	20%	0%
POLK	0.28	0.33	0.28	0.30	0%	-15%	7%
PUTNAM	2.91	7.60	6.35	6.44	118%	-16%	1%
ST. JOHNS	2.35	2.38	2.13	2.13	-9%	-11%	0%
SEMINOLE	8.05	11.68	3.63	3.72	-55%	-69%	2%
VOLUSIA	6.50	4.53	5.32	5.35	-18%	17%	1%
TOTALS	55.21	85.37	80.76	82.33	46%	-5%	2%

* Does not included livestock use.

Commercial/Industrial Self-Supplied

This category of use includes many types of self-supplied systems. Commercial self-supplied use includes institutional uses; i.e., government facilities, military installation, schools, prisons, hospitals, recreational facilities, and nonmanufacturing establishments. Industrial self-supplied use includes mining, processing, and manufacturing facilities. In 1986, there were 34 self-supplied commercial users inventoried and 57 self-supplied industrial users inventoried.

Total water withdrawn by commercial-industrial self-supplied systems was 148.46 Mgal/d, of which 86 percent was ground water. Industrial accounted for the majority (92 percent) of withdrawals. An additional 28.93 Mgal/d and 42.10 Mgal/d was supplied by public supply systems to industrial and commercial users, respectively (Figure 7). Fresh ground water withdrawals accounted for 127.96 Mgal/d, and fresh surface water withdrawals totaled 20.50 Mgal/d.

Commercial/industrial self-supplied withdrawals fluctuated very little during 1986. The withdrawals were highest in June and lowest in January (Figure 9). Total fluctuation between these two months was only 22 Mgal/d, indicating very little seasonal variation.

The pulp and paper industry was the largest single water user within this category in 1986 with a total withdrawal of 85.2 Mgal/d. Mining (sand, limerock and minerals) withdrawals totaled 35.06 Mgal/d in 1986. It is necessary to note that some mining withdrawal values may be associated with the dewatering process

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

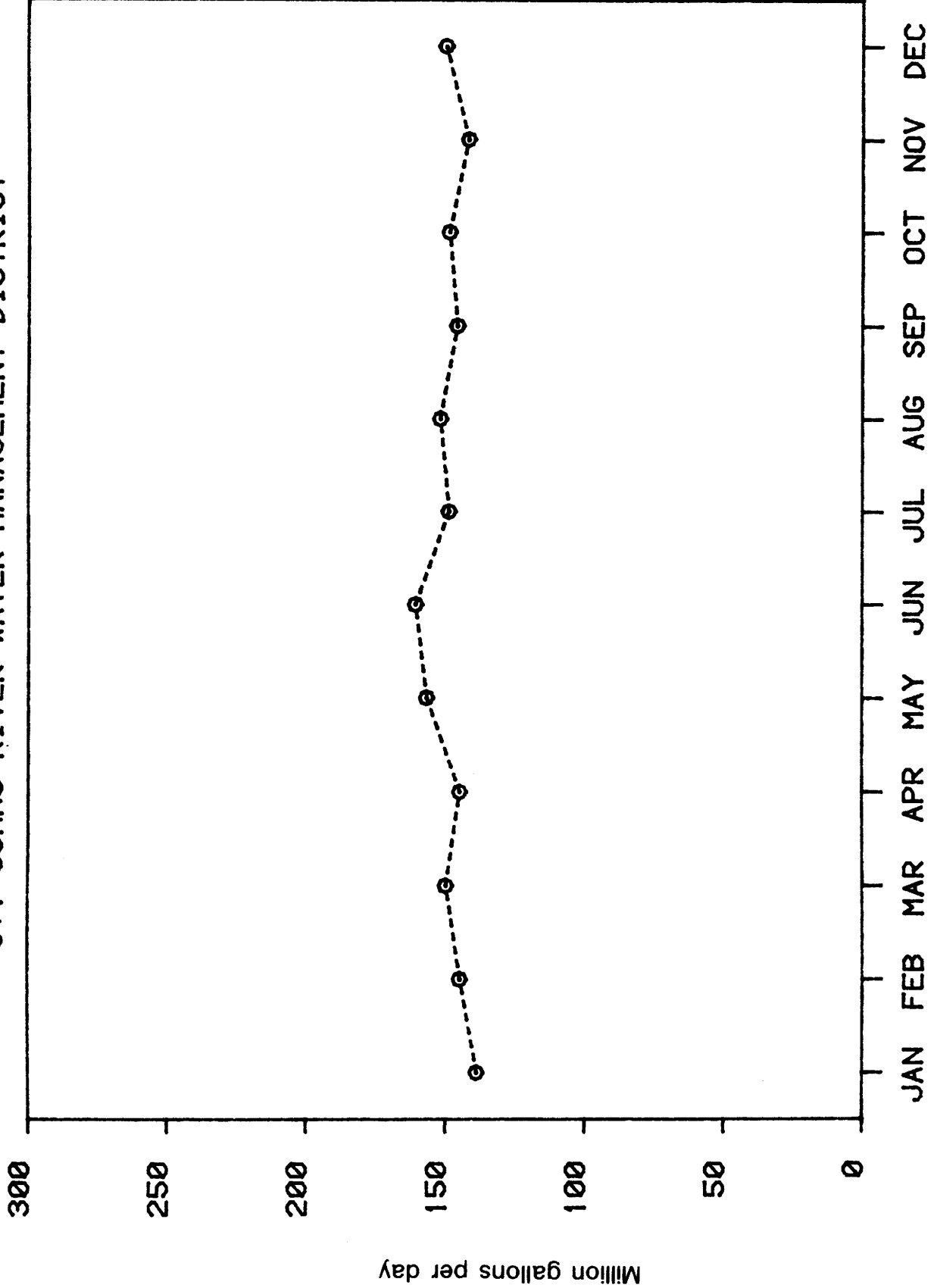


Figure 9 Monthly Commercial/industrial self-supplied freshwater withdrawals: 1986

of the mining operation. The mining industry is scattered throughout the District, whereas the pulp industry is located in the northeast portion of the District. Together, pulp and paper industries and mining accounted for 81 percent of the commercial/industrial withdrawals in the District.

The largest amount (32 percent) of Commercial-industrial self-supplied freshwater withdrawals in 1986 by county, occurred in Putnam County. The majority (74 percent) of the withdrawals in Putnam County were for pulp and paper manufacturing. Other counties with significant commercial-industrial self-supplied freshwater withdrawals in 1986 were Nassau, Duval, Lake and Clay counties (Table 8). These four counties coupled with Putnam County accounted for 91.5 percent of the commercial-industrial withdrawals.

Self-supplied commercial-industrial freshwater withdrawals have decreased 44.92 Mgal/d (11 percent) between 1975 and 1985 (Table 9). However, for the same period (1975 to 1986) deliveries to commercial and industrial users from public supply systems have increased 36.32 Mgal/d. Because of the cost of producing water and treating wastewater, many industries that were formerly self-supplied now receive and discharge water to public supply systems. Specifically, within the SJRWMD, pulp and paper withdrawals have decreased 27.58 Mgal/d since 1975, while withdrawals for mining have increased 24.33 Mgal/d. Water conservation practices and permitting restrictions on withdrawals and discharges in Florida have also affected water use declines in this category, during the last 10 years.

Table 8. Commercial/industrial self-supplied water withdrawals by county : 1986

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT						
(All values in Million gallons per day)						
	FRESH WATER		SALINE WATER		TOTALS	REUSE
	GROUND	SURFACE	GROUND	SURFACE	TOTALS	
ALACHUA	1.93	0.00	0.00	0.00	1.93	0.00
BAKER	0.18	0.00	0.00	0.00	0.18	0.00
BRADFORD	0.00	0.00	0.00	0.00	0.00	0.00
BREVARD	0.57	0.00	0.00	0.00	0.57	0.00
CLAY	7.05	4.43	0.00	0.00	11.48	0.00
DUVAL	22.82	0.00	0.00	0.00	22.82	0.00
FLAGLER	0.13	0.00	0.00	0.00	0.13	0.00
INDIAN RIVER	0.18	0.00	0.00	0.00	0.18	0.00
LAKE	11.53	3.94	0.00	0.00	15.47	0.00
MARION	0.73	1.93	0.00	0.00	2.66	0.00
NASSAU	38.42	0.00	0.00	0.00	38.42	0.00
OKEECHOBEE	0.06	0.00	0.00	0.00	0.06	0.00
ORANGE	3.42	0.00	0.00	0.00	3.42	0.00
OSCEOLA	0.00	0.00	0.00	0.00	0.00	0.00
POLK	0.02	0.00	0.00	0.00	0.02	0.00
PUTNAM	37.37	10.20	0.00	0.00	47.57	0.00
ST. JOHNS	0.07	0.00	0.00	0.00	0.07	0.00
SEMINOLE	2.54	0.00	0.00	0.00	2.54	0.00
VOLUSIA	0.94	0.00	0.00	0.00	0.94	0.00
DISTRICT TOTALS	127.96	20.50	0.00	0.00	148.46	0.00
TOTAL GROUND		127.96				
TOTAL SURFACE		20.50				
DISTRICT TOTALS		148.46				

Table 9. Historical Commercial/industrial self-supplied freshwater use by county
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

(All values in Million gallons per day)

COUNTY	TOTAL FRESH WATER USE by YEAR				PERCENT CHANGE BETWEEN			
	1975	1980	1985	1986	1975&1985	1980&1985	1980&1985	1985&1986
ALACHUA	5.23	1.41	1.98	1.93	-62%	40%	40%	-3%
BAKER	0.32	0.27	0.16	0.18	-50%	-41%	-41%	13%
BRADFORD	0.00	0.00	0.00	0.00	0%	0%	0%	0%
BREVARD	0.45	0.18	0.24	0.57	-47%	33%	33%	138%
CLAY	10.92	5.33	11.74	11.48	8%	120%	120%	-2%
DUVAL	48.77	40.46	38.08	22.82	-22%	-6%	-6%	-40%
FLAGLER	0.00	0.04	0.10	0.13	0%	150%	150%	30%
INDIAN RIVER	0.44	0.27	0.12	0.18	-73%	-56%	-56%	50%
LAKE	20.65	14.82	15.65	15.47	-24%	6%	6%	-1%
MARION	0.30	0.82	2.64	2.66	780%	222%	222%	1%
NASSAU	57.93	44.97	37.40	38.42	-35%	-17%	-17%	3%
OKEECHOBEE	0.00	0.06	0.06	0.06	0%	0%	0%	0%
ORANGE	6.36	8.09	5.31	3.42	-17%	-34%	-34%	-36%
OSCEOLA	0.00	0.00	0.00	0.00	0%	0%	0%	0%
POLK	0.08	0.01	0.13	0.02	63%	1200%	1200%	-85%
PUTNAM	37.20	41.94	53.05	47.57	43%	26%	26%	-10%
ST. JOHNS	2.00	0.02	0.08	0.07	-96%	300%	300%	-13%
SEMINOLE	2.59	4.13	4.96	2.54	92%	20%	20%	-49%
VOLUSIA	0.14	0.55	0.64	0.94	357%	16%	16%	47%
TOTALS	193.38	163.37	172.34	148.46	-11%	5%	5%	-14%

Agricultural Irrigation

Agricultural water use includes withdrawals for both irrigation and nonirrigation. Irrigation withdrawals include supplementing rainfall for the growth of commercial crops, ornamentals, and grasses. Nonirrigation withdrawals include water used for livestock, both drinking and washdown, and augmentation for fish farming. Withdrawals were calculated for this category in two steps. First, the number of acres irrigated and method of irrigation for each of the 29 crops inventoried within every county was determined. In 1986, these data were supplied by the agricultural extension agent in each county. Other sources for acreage data included consumptive use permit files and the Florida Department of Agriculture, Florida Crop and Livestock Reporting Service. The second step is to determine the amount of supplemental irrigation water needed to grow each crop for 1986 as well as the water necessary to overcome the inefficiency of the irrigated system. This was done by utilizing a variety of methods and information services including the modified Blaney-Criddle irrigation model (Irrigation Water Requirements, 1970 revised), the University of Florida "AFSIRS" computer model (Smajstrla, 1986), the United States Department of Agriculture, Soil Conservation Service (Florida Irrigation Guide, 1982) and selected agricultural monitoring programs (i.e., Benchmark Farms) throughout the state. Once this supplemental irrigation requirement was determined, it was multiplied by the number of acres irrigated and a water use value was derived.

Agriculture was the largest user of freshwater in the District in 1986. Total withdrawals equaled 617.97 Mgal/d, of which 403.33 Mgal/d was ground water and the remainder surface water 214.64 Mgal/d. An additional 6.90 Mgal/d of reclaimed wastewater was used for irrigation purposes. The Floridan aquifer system was the largest producer of ground water for agricultural irrigation in 1986 accounting for 93 percent of the total withdrawals.

Agricultural irrigation also displays the greatest seasonal variation in withdrawals. Irrigation demands fluctuate from a high in April to a low in September (Figure 10). This fluctuation of more than 1260 Mgal/d is the result of intense crop production and relatively dry conditions during the early spring. Agricultural irrigation data were collected for 1986 for four crop categories: vegetable, fruit, field, and ornamentals and grasses. Within these four categories 29 specific crops and three general crops were delineated (Appendix, Table A1). The number of acres farmed (not including residential) totaled 975 thousand acres. Eighty-one percent of this acreage, excluding improved pasture, is irrigated. The majority of acreage (70 percent) is irrigated by flood systems. The remaining is irrigated by sprinkler (18 percent) and low pressure/low volume systems (12 percent).

Of the four major crop types, ornamentals and grasses were the largest users of water for irrigation in 1986, accounting for 38 percent of the agricultural water use. Of the specific crops, citrus accounted for the largest amount of irrigation water

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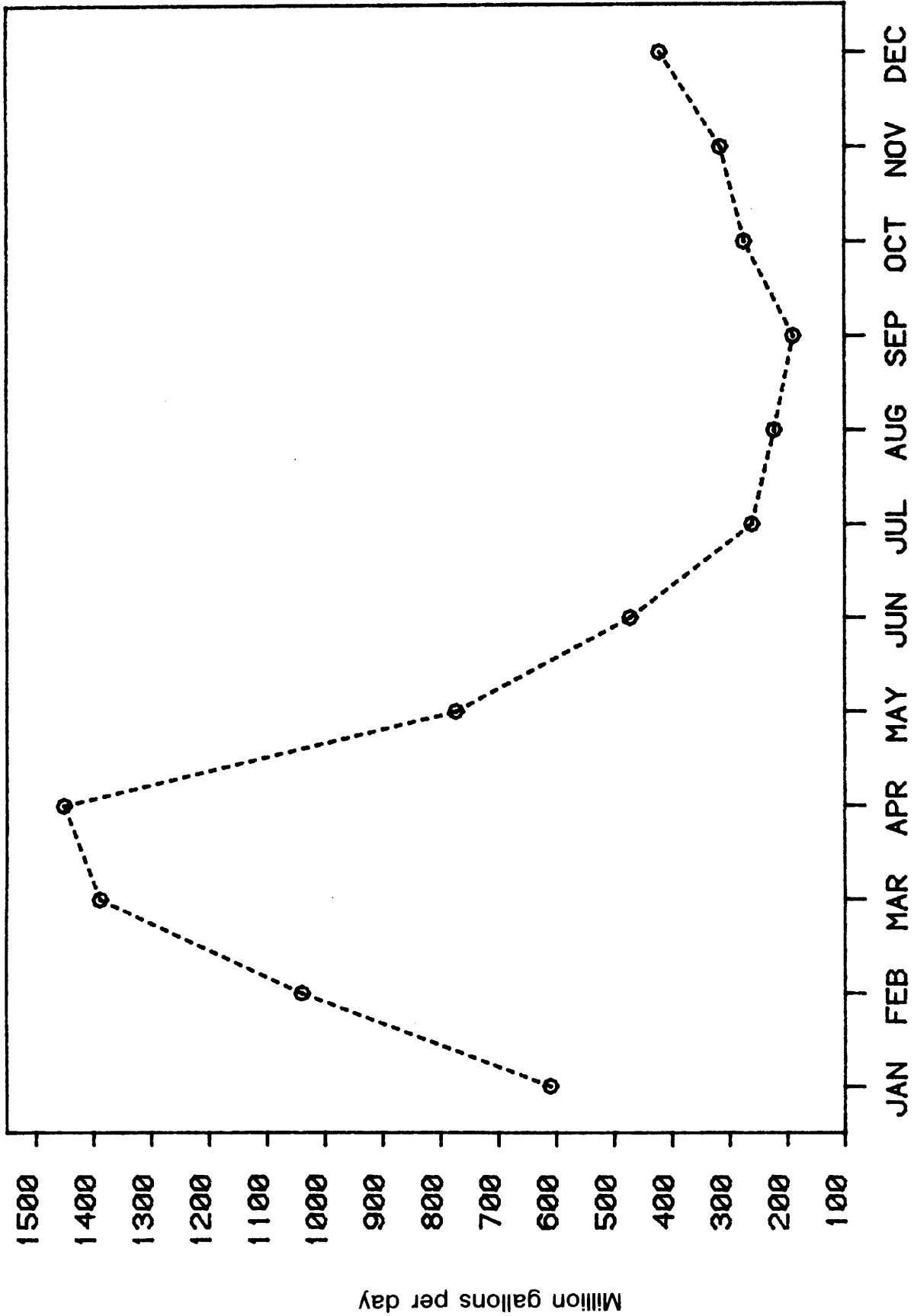


Figure 10 Monthly Agricultural Irrigation freshwater withdrawals: 1986

withdrawals (31 percent). Other crops using large amounts of irrigation water include improved pasture (20 percent), golf course turf grass (6.6 percent) and potatoes (6.3 percent). Acreage and water withdrawals for the twenty-nine specific crops are shown in the Appendix (Table A1 and Figure A2).

The largest amount of irrigation water withdrawals by county occurred in Indian River County (26 percent of total). In Indian River County total withdrawals equaled 158.48 Mgal/d of which 72 percent was surface water. The largest ground water withdrawal by county in 1986 occurred in Brevard County. Other counties that withdrew over 40 Mgal/d for irrigation were Orange, Lake, St. Johns, and Volusia (Table 10). These six counties accounted for more than 78 percent of the water withdrawals used for irrigation in 1986.

The number of agricultural acres irrigated has increased between 1975 and 1985, despite losses to freezes and urbanization. This increase is due in part to the replanting of freeze damaged acreage and more farms having access to irrigation systems or water sources. For the same reasons agricultural water withdrawals have increased more than 38 Mgal/d between 1975 and 1985 (Table 11). In addition to ground water and surface water withdrawals, reclaimed water use for irrigation has increased from near 0 to 6.9 Mgal/d between 1975 and 1985.

Table 10. Agricultural Irrigation water withdrawals by county : 1986
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

	FRESH WATER		SALINE WATER		TOTALS		TOTALS		REUSE	
	GROUND	SURFACE	GROUND	SURFACE	GROUND	SURFACE	GROUND	SURFACE	GROUND	SURFACE
ALACHUA	4.84	0.14	0.00	0.00	4.98	0.00	0.00	0.00	0.00	0.00
BAKER	2.95	2.19	0.00	0.00	5.14	0.00	0.00	0.00	0.00	0.00
BRADFORD	0.08	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
BREVARD	107.13	10.87	0.00	0.00	118.00	0.00	0.00	0.00	0.00	0.66
CLAY	3.02	0.43	0.00	0.00	3.45	0.00	0.00	0.00	0.00	0.00
DUVAL	15.62	1.22	0.00	0.00	16.84	0.00	0.00	0.00	0.00	1.19
FLAGLER	6.89	1.33	0.00	0.00	8.22	0.00	0.00	0.00	0.00	0.00
INDIAN RIVER	44.23	114.25	0.00	0.00	158.48	0.00	0.00	0.00	0.00	0.00
LAKE	33.28	8.41	0.00	0.00	41.69	0.00	0.00	0.00	0.00	3.07
MARION	8.56	2.10	0.00	0.00	10.66	0.00	0.00	0.00	0.00	0.29
NASSAU	2.17	0.97	0.00	0.00	3.14	0.00	0.00	0.00	0.00	0.68
OKEECHOBEE	8.17	0.25	0.00	0.00	8.42	0.00	0.00	0.00	0.00	0.00
ORANGE	32.92	50.98	0.00	0.00	83.90	0.00	0.00	0.00	0.00	0.59
OSCEOLA	6.39	8.67	0.00	0.00	15.06	0.00	0.00	0.00	0.00	0.00
POLK	9.59	0.99	0.00	0.00	10.58	0.00	0.00	0.00	0.00	0.00
PUTNAM	18.71	1.52	0.00	0.00	20.23	0.00	0.00	0.00	0.00	0.00
ST. JOHNS	40.05	1.29	0.00	0.00	41.34	0.00	0.00	0.00	0.00	0.42
SEMINOLE	25.14	2.31	0.00	0.00	27.45	0.00	0.00	0.00	0.00	0.00
VOLUSIA	33.59	6.72	0.00	0.00	40.31	0.00	0.00	0.00	0.00	0.00
DISTRICT TOTALS	403.33	214.64	0.00	0.00	617.97	0.00	0.00	0.00	0.00	6.90
TOTAL GROUND	403.33									
TOTAL SURFACE	214.64									
DISTRICT TOTALS	617.97									

Table 11. Historical Agricultural Irrigation freshwater use by county
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

COUNTY	TOTAL FRESH WATER USE by YEAR				PERCENT CHANGE BETWEEN	
	1975	1980	1985	1986	1975&1985	1980&1985
ALACHUA	1.79	9.91	3.83	4.98	114%	-61%
BAKER	1.52	2.92	5.14	5.14	238%	76%
BRADFORD	0.00	0.08	0.08	0.08	0%	0%
BREVARD	61.89	155.92	126.02	118.00	104%	-19%
CLAY	0.51	3.32	3.73	3.45	631%	12%
DUVAL	2.55	6.18	20.17	16.84	691%	226%
FLAGLER	8.40	9.40	7.24	8.22	-14%	-23%
INDIAN RIVER	298.16	137.09	135.61	158.48	-55%	-1%
LAKE	52.62	92.83	33.27	41.69	-37%	-64%
MARION	12.11	23.48	8.72	10.66	-28%	-63%
NASSAU	0.93	2.45	2.66	3.14	186%	9%
OKEECHOBEE	11.04	5.31	8.32	8.42	-25%	57%
ORANGE	22.46	52.58	83.18	83.90	270%	58%
OSCEOLA	5.10	2.95	7.94	15.06	56%	169%
POLK	3.05	15.64	10.54	10.58	246%	-33%
PUTNAM	19.04	17.84	18.16	20.23	-5%	2%
ST. JOHNS	28.92	25.34	42.07	41.34	45%	66%
SEMINOLE	10.98	19.08	25.27	27.45	130%	32%
VOLUSIA	5.56	25.36	43.06	40.31	674%	70%
TOTALS	546.63	607.68	585.01	617.97	7%	-4%

Power Generation Self-Supplied

In 1986, withdrawal data were collected for 13 self-supplied thermoelectric power plants in the SJRWMD. Data were collected for fresh and saline, ground and surface water withdrawals. Total water withdrawals for the 13 self-supplied power plants amounted to 1,457.29 Mgal/d but only 9 percent was freshwater. Ninety-six percent of the freshwater was from surface water and 3 percent from ground water sources. Water consumed for power generation was estimated at 0.3 percent of the total withdrawals in 1986. The Floridan aquifer accounted for over 95 percent of the ground water withdrawals.

Withdrawals for power generation fluctuate from month to month (Figure 11). These monthly fluctuations are often a result of power plant shutdowns for maintenance. Because the majority of withdrawals are from surface water sources (primarily saline) and the majority of water is returned, these fluctuations have little impact on the hydrologic system. Of the total water withdrawn, more than 99.8 percent was used for cooling purposes. This water is used for one-time cooling or recirculated several times before being returned to its surface source. The remaining 0.3 percent of water, which is primarily ground water, is used for boiler makeup or domestic purposes throughout the plant. This water is almost 100 percent consumed.

The largest amount of saline water withdrawals by county occurred in Brevard County (82 percent). The largest amount of fresh water withdrawals by county occurred in Volusia County (88

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

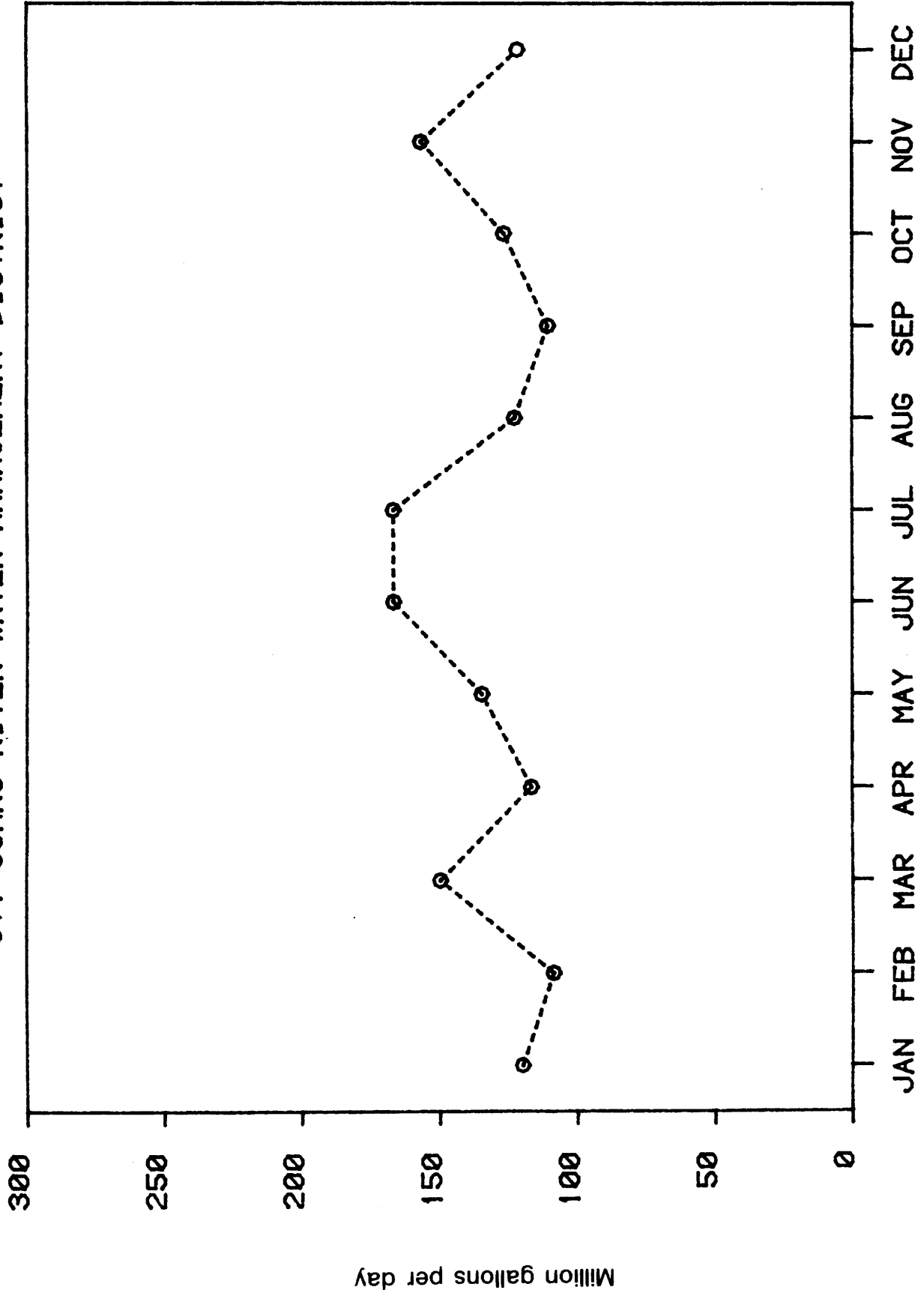


Figure 11. Monthly Power Generation (Thermoelectric self-supplied) freshwater withdrawals: 1986

Table 12. Power generation (Thermoelectric self-supplied) water withdrawals by county : 1986
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

	FRESH WATER		SALINE WATER		TOTALS	REUSE
	GROUND	SURFACE	GROUND	SURFACE		
ALACHUA	0.04	0.00	0.00	0.00	0.00	0.00
BAKER	0.00	0.00	0.00	0.00	0.00	0.00
BRADFORD	0.00	0.00	0.00	0.00	0.00	0.00
BREVARD	0.28	0.00	0.28	1,089.21	1,089.21	0.00
CLAY	0.00	0.00	0.00	0.00	0.00	0.00
DUVAL	3.09	0.00	3.09	217.45	217.45	0.00
FLAGLER	0.00	0.00	0.00	0.00	0.00	0.00
INDIAN RIVER	0.24	0.00	0.24	16.91	16.91	0.00
LAKE	0.00	0.00	0.00	0.00	0.00	0.00
MARION	0.00	0.00	0.00	0.00	0.00	0.00
NASSAU	0.00	0.00	0.00	0.00	0.00	0.00
OKEECHOBEE	0.00	0.00	0.00	0.00	0.00	0.00
ORANGE	0.17	0.00	0.17	0.00	0.00	0.00
OSCEOLA	0.00	0.00	0.00	0.00	0.00	0.00
POLK	0.00	0.00	0.00	0.00	0.00	0.00
PUTNAM	0.53	12.09	12.62	0.00	0.00	0.00
ST. JOHNS	0.00	0.00	0.00	0.00	0.00	0.00
SEMINOLE	0.00	0.00	0.00	0.00	0.00	0.00
VOLUSIA	0.36	116.92	117.28	0.00	0.00	0.00
DISTRICT TOTALS	4.71	129.01	133.72	1,323.57	1,323.57	0.00
TOTAL GROUND		4.71				
TOTAL SURFACE		1,452.58				
DISTRICT TOTALS		1,457.29				

percent). There is one power plant in the District that uses reclaimed wastewater for cooling. This plant is located in Orange County.

Total fresh water withdrawals for power generation decreased more than 76 percent from 1975 to 1985 (Table 13). During this 10-year period, power plants have been recycling cooling water after routing the water to cooling ponds or cooling towers.

Table 13. Historical Thermoelectric self-supplied power generation freshwater use by county
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

COUNTY	TOTAL FRESH WATER USE by YEAR				PERCENT CHANGE BETWEEN		
	1975	1980	1985	1986	1975&1985	1980&1985	1985&1986
ALACHUA	0.90	0.72	0.51	0.04	-43%	-29%	-92%
BAKER	0.00	0.00	0.00	0.00	0%	0%	0%
BRADFORD	0.00	0.00	0.00	0.00	0%	0%	0%
BREVARD	0.50	0.25	0.31	0.28	-38%	24%	-10%
CLAY	0.00	0.00	0.00	0.00	0%	0%	0%
DUVAL	2.12	2.65	2.06	3.09	-3%	-22%	50%
FLAGLER	0.00	0.00	0.00	0.00	0%	0%	0%
INDIAN RIVER	4.30	0.43	0.31	0.24	-93%	-28%	-23%
LAKE	0.00	0.00	0.00	0.00	0%	0%	0%
MARION	0.00	0.00	0.00	0.00	0%	0%	0%
NASSAU	0.00	0.00	0.00	0.00	0%	0%	0%
OKEECHOBEE	0.00	0.00	0.00	0.00	0%	0%	0%
ORANGE	77.40	83.59	0.00	0.17	-100%	-100%	0%
OSCEOLA	0.00	0.00	0.00	0.00	0%	0%	0%
POLK	0.00	0.00	0.00	0.00	0%	0%	0%
PUTNAM	120.06	1.03	9.81	12.62	-92%	852%	29%
ST. JOHNS	0.00	0.00	0.00	0.00	0%	0%	0%
SEMINOLE	0.00	0.00	0.00	0.00	0%	0%	0%
VOLUSIA	314.03	4.02	111.41	117.28	-65%	2671%	5%
TOTALS	519.31	92.69	124.41	133.72	-76%	34%	7%

Miscellaneous Self-Supplied

Miscellaneous water uses in the District include water withdrawn for residential lawn irrigation and residential heat pump/air conditioning that is not supplied by public systems. These withdrawals are not included in other water use categories.

Residential lawn irrigation includes withdrawals (from wells) for the sole purpose of irrigating a residential lawn with no other domestic use involved. The withdrawals are not included in the turf grass category of agricultural irrigation. Residential lawn irrigation data was available only for Brevard County.

Residential heat pumps and air conditioning include withdrawals (from wells) for use in a heat exchange for a heating/air conditioning unit. Many of these withdrawals also provide irrigation water when the unit is operating. Restrictions on these withdrawals now require return wells, but existing systems continue to discharge to the surface. Data for these withdrawals existed in only 4 out of the 19 counties in the District.

Unused discharge from free flowing wells were also included in this section. There are 341 inventoried flowing wells in the District (Davis, 1987) and many of these wells are being plugged as a result of the District's Abandoned Artesian Well Plugging Program.

Total withdrawals for this category totaled 66.25 Mgal/d, all of which was ground water. Heat pump/air conditioning

accounted for 43.39 Mgal/d, free-flowing wells for 18.27 Mgal/d, and residential lawn watering for 4.59 Mgal/d. Although the quantities of water withdrawn are not delineated by aquifer in this report, the majority of heat pump-air conditioning and free flowing wells are completed into the Floridan aquifer. Shallow aquifers are the primary supply source for residential lawn irrigation wells. Miscellaneous Self-Supplied data is presented for 14 counties in the District (Table 14).

Table 14. Miscellaneous ground water withdrawals and use by county : 1986
 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 (All values in Million gallons per day)

COUNTY	LAWN IRR.	HEAT PUMPS	FLOWING WELLS	TOTAL
ALACHUA	0.00	0.97	0.00	0.97
BAKER	0.00	0.00	0.00	0.00
BRADFORD	0.00	0.00	0.00	0.00
BREVARD	4.59	27.34	12.30	44.23
CLAY	0.00	0.00	0.36	0.36
DUVAL	0.00	5.63	0.51	6.14
FLAGLER	0.00	0.00	0.01	0.01
INDIAN RIVER	0.00	0.00	0.49	0.49
LAKE	0.00	0.00	0.49	0.49
MARION	0.00	0.00	1.71	1.71
NASSAU	0.00	0.00	0.01	0.01
OKEECHOBEE	0.00	0.00	0.00	0.00
ORANGE	0.00	0.82	0.02	0.84
OSCEOLA	0.00	0.00	0.00	0.00
POLK	0.00	0.00	0.00	0.00
PUTNAM	0.00	2.30	0.55	2.85
ST. JOHNS	0.00	0.10	0.87	0.97
SEMINOLE	0.00	0.00	0.12	0.12
VOLUSIA	0.00	6.23	0.83	7.06
TOTALS	4.59	43.39	18.27	66.25

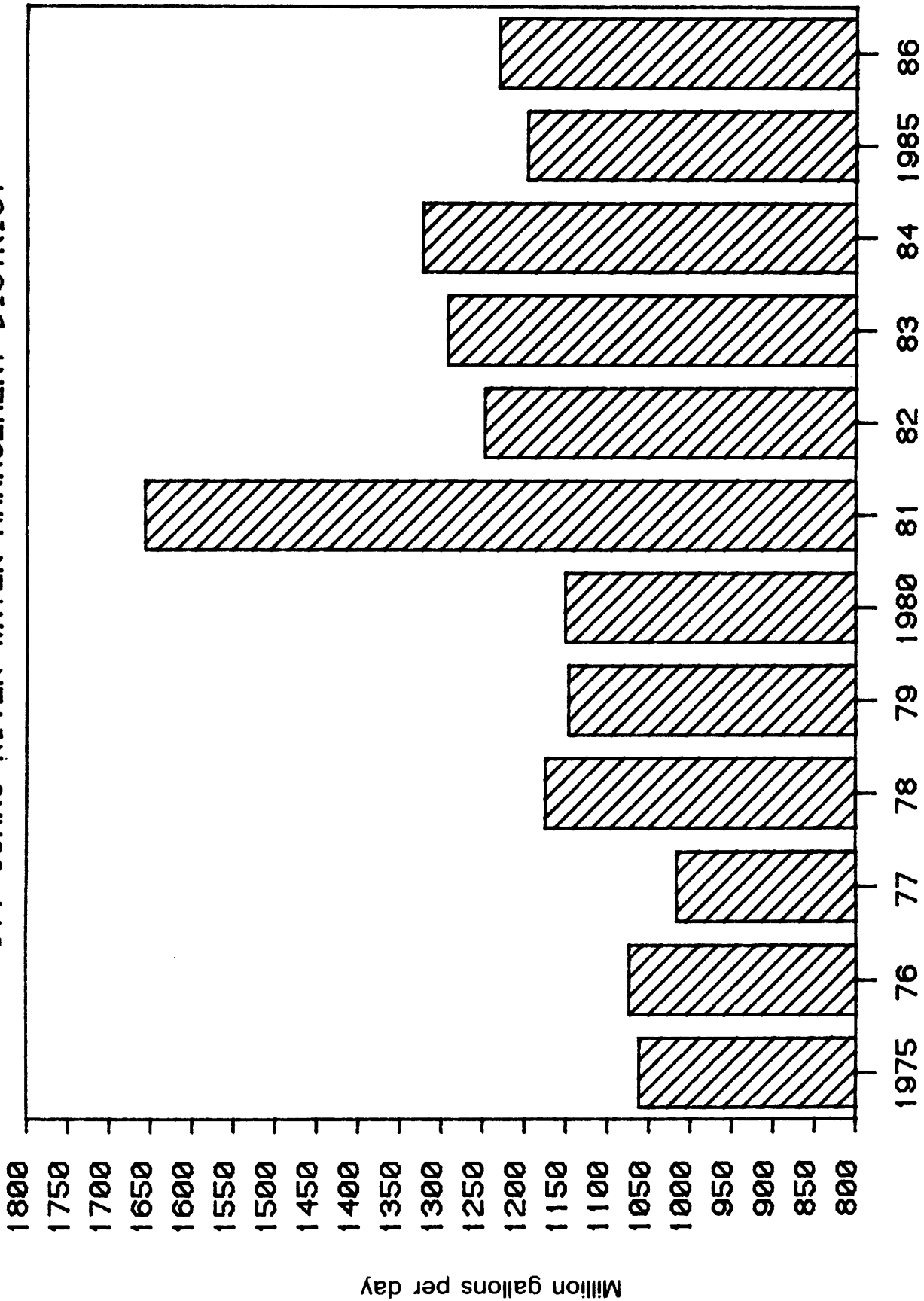
SUMMARY

The total amount of fresh water withdrawn in 1986 in the SJRWMD was 1,430.72 Mgal/d. Of this amount, ground water accounted for 73.5 percent and surface water accounted for the remaining 26.5 percent. The Floridan aquifer supplied more than 90 percent of the ground water withdrawn in the District in 1986. Fresh ground water withdrawals, for the District increased 49 percent between 1975 and 1985. In contrast, fresh surface water withdrawals, excluding power generation withdrawals, decreased 45 percent between 1975 and 1985.

Agricultural irrigation accounted for the largest percentage of withdrawals in three categories: ground water (38 percent); fresh surface water (57 percent); and ground water from the Floridan aquifer (40 percent). Following agricultural irrigation in these categories were: ground water withdrawals (35 percent public supply); fresh surface water withdrawals (34 percent power generation) and ground water from the Floridan aquifer (37 percent public supply). Domestic self-supplied accounted for the majority (54 percent) of withdrawals from the Surficial aquifers throughout the District.

The largest amount of fresh ground water withdrawn by county was withdrawn in Brevard County. The largest amount of fresh surface water withdrawn by county was withdrawn in Indian River County. Agricultural irrigation was the largest user of water in both of these two coastal counties. The largest combined amount of water withdrawn for public supply use was withdrawn in Duval and Orange counties; accounting for nearly 52 percent of the

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT



(note: 1976 data was estimated)

Figure 12 Historical Total freshwater withdrawals (excluding power generation withdrawals)

public supply withdrawals in 1986. Duval and Orange counties also contain for 40 percent of the District's population.

Fresh water withdrawals increased for public supply (35 percent), domestic self-supplied (46 percent) and agricultural irrigation (7 percent) between 1975 and 1985. In contrast, power generation withdrawals decreased 76 percent and commercial/industrial decreased 11 percent between 1975 and 1985.

Total fresh water withdrawals between 1975 and 1986 have fluctuated from year to year, but generally have been increasing (Figure 12). This increase in withdrawals, with the exceptions of 1981 (drought year) and 1985 (wet year) reflects the overall increase in population, agricultural production and tourism throughout the District. This growth emphasizes the need to carefully manage the water resources of the District.

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT - 1986

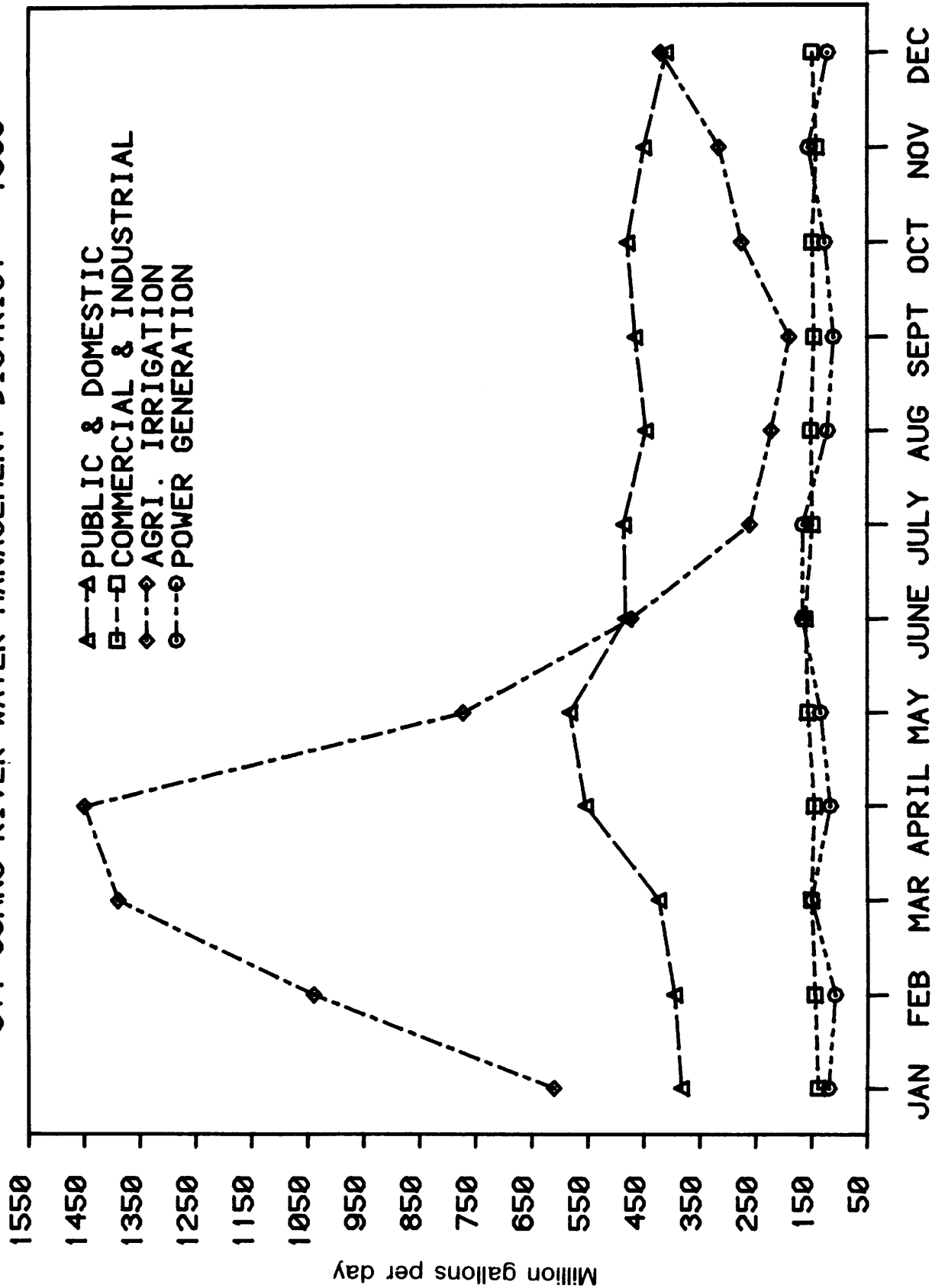


FIGURE A-1. MONTHLY FRESH WATER WITHDRAWALS by CATEGORY

STATE of FLORIDA DATA - 1986

TOTAL POPULATION 11,657,843
 TOTAL LAND AREA 58,560 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 2,813,578 (24.1 % of the state)
 PUBLIC SUPPLY 2,315,929 (1)(2)
 SELF-SUPPLIED 497,649
 PER CAPITA 165

LAND AREA (ACRES)
 TOTAL AREA 7,900,060 12,344 SQ. MILES
 FARMED 975,377
 IRRIGATED 396,505

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY (3)	366.52	15.47	381.99	(4)	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	82.33	0.00	82.33	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	127.96	20.50	148.46	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	403.33	214.64	617.97	0.00	0.00	0.00	6.90
POWER GENERATION S-S	4.71	129.01	133.72	0.00	1,323.57	1,323.57	0.00
MISCELLANEOUS	66.25	0.00	66.25	0.00	0.00	0.00	0.00
	1,051.10	379.62	1,430.72	0.00	1,323.57	1,323.57	6.90
TOTAL GROUND	1,051.10						
TOTAL SURFACE		1,703.19					
DISTRICT TOTAL (5)		2,754.29					

- (1) DOES NOT INCLUDE 7,000 POPULATION SERVED BY PUBLIC SUPPLY IN THE SJRWMD WHO LIVE IN THE SRWMD.
- (2) INCLUDES 3,150 POPULATION SERVED BY PUBLIC SUPPLY IN THE SWFWMD WHO LIVE IN THE SJRWMD.
- (3) INCLUDES 1.74 Mgal/d OF SALINE GROUND WATER USED IN R/O FOR PUBLIC SUPPLY.
- (4) DOES NOT INCLUDE 1.74 Mgal/d OF SALINE GROUND WATER USED IN R/O FOR PUBLIC SUPPLY.
- (5) REUSE AMOUNTS ARE NOT INCLUDED IN TOTALS.

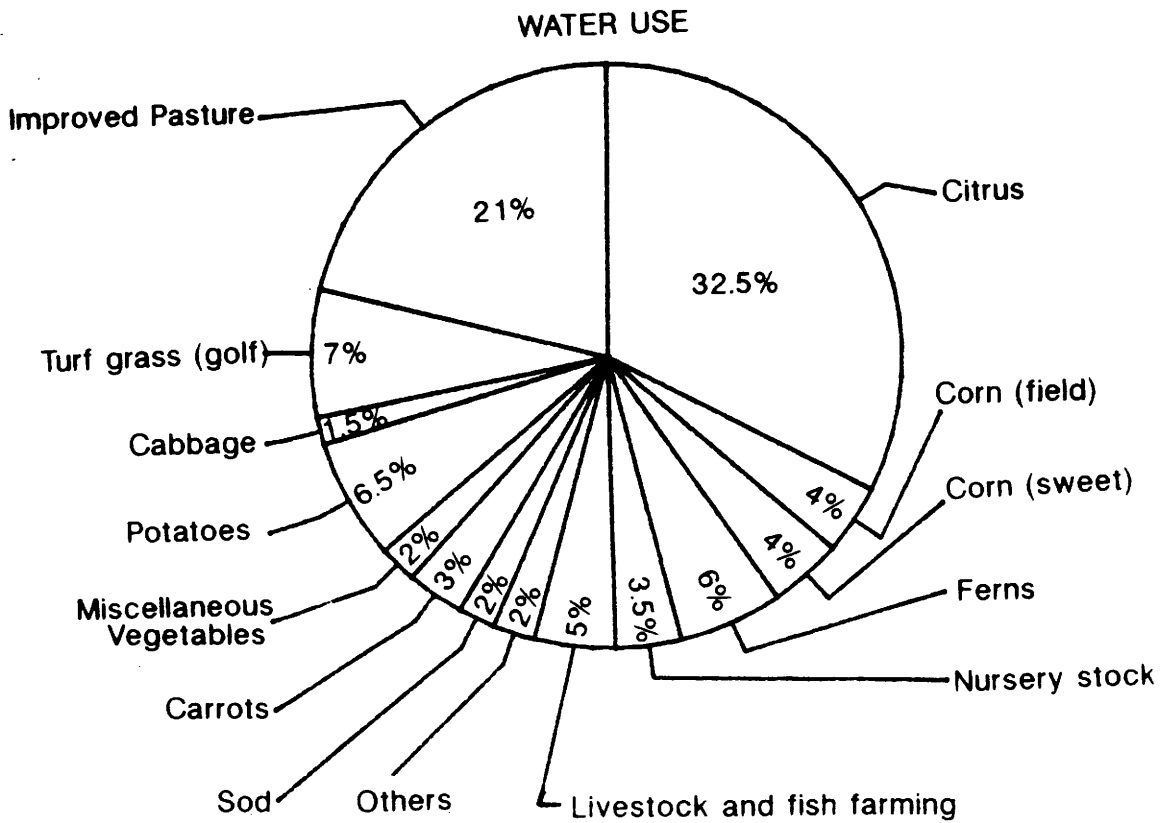
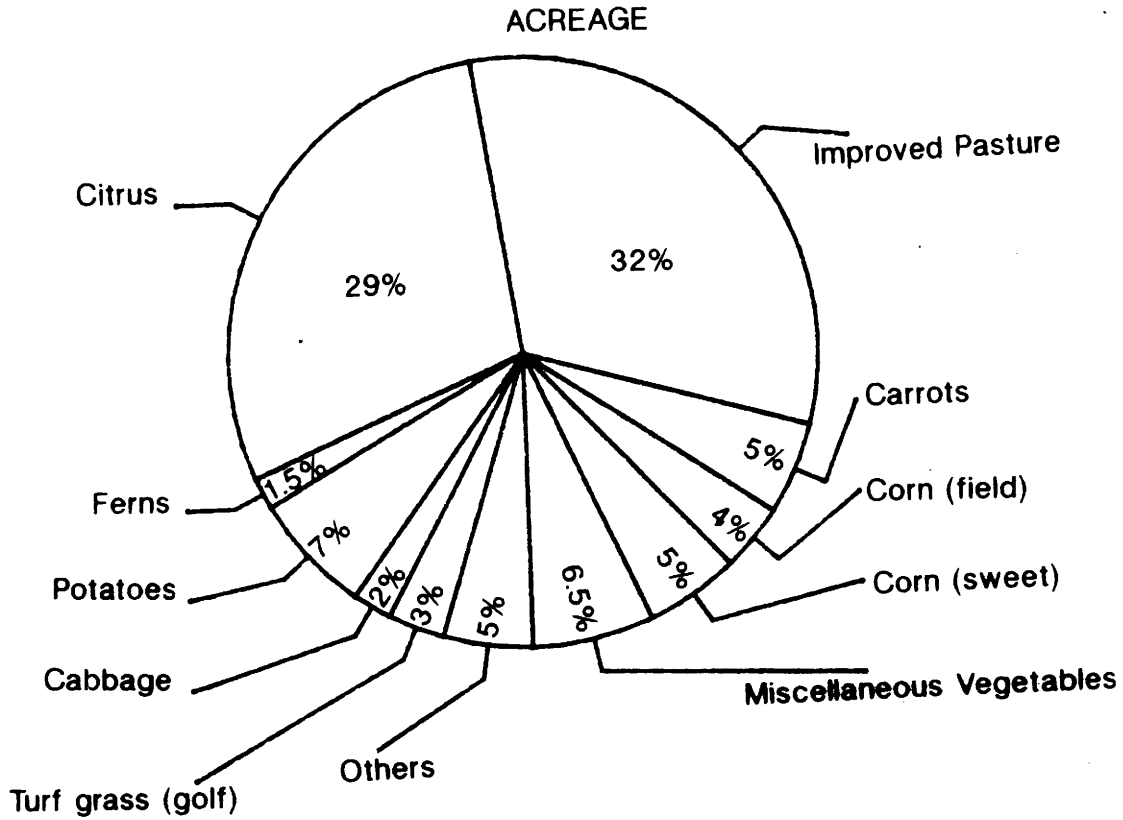
SJRWMD - 1986

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-1. WATER USE BY CROP FOR SJRWMD - 1986

	TOTAL ACRES		WATER USE IN MGD			
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	TOTAL
VEGETABLE CROPS						
CABBAGE	8,530	8,530	8.77	0.00	0.00	8.77
CARROTS	20,200	20,200	6.34	12.08	0.00	18.42
CUCUMBERS	4,145	3,945	3.23	0.00	0.00	3.23
PEPPERS	570	520	0.26	0.00	0.00	0.26
POTATOES	26,700	26,700	38.96	0.00	0.00	38.96
TOMATOES	87	87	0.10	0.00	0.00	0.10
SWEET CORN	20,505	20,380	6.89	16.65	0.00	23.54
WATERCRESS	225	225	8.43	0.00	0.00	8.43
MISC. VEGETABLES	23,622	21,555	9.23	25.91	0.00	35.14
FRUIT CROPS						
BLUEBERRIES	758	628	0.68	0.00	0.00	0.68
CITRUS	133,596	115,479	92.33	97.05	1.18	189.38
GRAPES	125	112	0.19	0.00	0.00	0.19
PEACHES	100	100	0.24	0.01	0.00	0.25
PECANS	2,850	390	0.12	0.00	0.00	0.12
STRAWBERRIES	50	50	0.07	0.00	0.00	0.07
WATERMELLONS	3,500	2,450	2.59	0.04	0.00	2.63
MISC. FRUIT	100	90	0.13	0.00	0.00	0.13
FIELD CROPS						
FIELD CORN	23,780	14,750	11.00	11.45	0.00	22.45
PEANUTS	2,250	100	0.05	0.01	0.00	0.06
RICE	200	200	0.00	0.39	0.00	0.39
SORGHUM	5,650	2,300	2.17	0.22	0.00	2.39
SOYBEANS	4,799	200	0.22	0.00	0.00	0.22
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	182	80	0.00	0.07	0.00	0.07
WHEAT	1,200	1,000	1.17	0.00	0.00	1.17
MISC. GRAINS	10,034	150	0.22	0.00	0.00	0.22
ORNAMENTALS & GRASSES						
FERNS	6,987	6,882	27.90	5.41	0.00	33.31
FLOWERS & FOLIAGE	1,819	1,819	7.62	0.77	0.00	8.39
WOODY ORNAMENTALS	3,190	2,377	10.77	1.71	0.00	12.48
IMPROVED PASTURE	642,000	125,719	101.18	22.27	2.48	123.45
SOD	5,045	4,985	8.04	3.80	1.19	11.84
TURF GRASS (GOLF)	20,349	12,273	28.27	12.48	2.05	40.75
TURF GRASS (OTHER)	2,229	2,229	4.16	0.63	0.00	4.79
MISC. AGRICULTURAL						
LIVESTOCK	0	0	9.32	3.69	0.00	13.01
FISH FARMING/AESTHETIC	0	0	12.68	0.00	0.00	12.68
	975,377	396,505	403.33	214.64	6.90	617.97
SPRINKLER ACREAGE	69,914	396,505				
LOW PRESSURE ACREAGE	47,498					
FLOOD ACREAGE	279,093					

St. Johns River Water Management District



refer to table A-1 (previous page) for actual values.

Figure A-2. Irrigation acreage and water use by crop for 1986

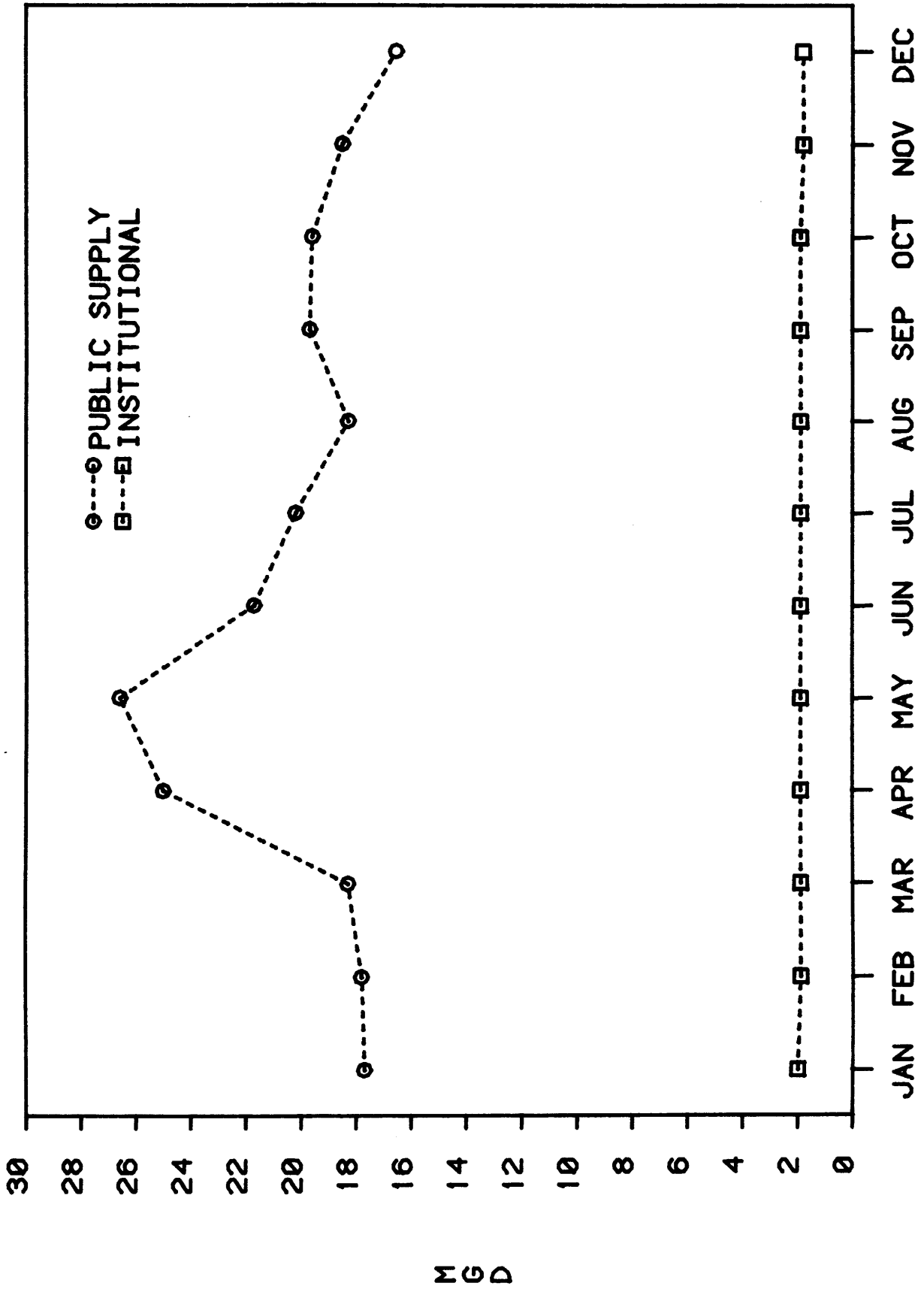


FIGURE A-3. MONTHLY FRESH WATER USE IN ALACHUA COUNTY: 1986

ALACHUA COUNTY DATA - 1986

TOTAL POPULATION 176,090
 TOTAL LAND AREA 961 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

 POPULATION
 TOTAL 123,200
 PUBLIC SUPPLY 111,751 (1)
 SELF-SUPPLIED 11,449
 PER CAPITA 168

LAND AREA (ACRES)
 TOTAL AREA 308,480 482 SQ. MILES
 FARMED 41,580
 IRRIGATED 4,081

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	20.01	0.00	20.01	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	1.93	0.00	1.93	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	1.93	0.00	1.93	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	4.84	0.14	4.98	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.04	0.00	0.04	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.97	0.00	0.97	0.00	0.00	0.00	0.00
	29.72	0.14	29.86	0.00	0.00	0.00	0.00
TOTAL GROUND	29.72						
TOTAL SURFACE		0.14					
COUNTY TOTAL		29.86					

(1) DOES NOT INCLUDE 7,000 POPULATION SERVED BY PUBLIC SUPPLY IN THE SJRWMD WHO LIVE IN THE SRWMD.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN ALACHUA COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
ARREDONDO VILLAGE/ESTATES	PUBLIC SUPPLY	1,200	0.113	0.000	FLORIDAN AQF.
GAINESVILLE REGIONAL UTILITIES	PUBLIC SUPPLY	114,500	19.497	0.000	FLORIDAN AQF.
HAWTHORNE - CITY OF	PUBLIC SUPPLY	1,270	0.207	0.000	FLORIDAN AQF.
KINCAID HILLS S/D	PUBLIC SUPPLY	1,000	0.112	0.000	FLORIDAN AQF.
MICANOPY - TOWN OF	PUBLIC SUPPLY	781	0.075	0.000	FLORIDAN AQF.
GAINESVILLE REGIONAL UTILITIES	POWER GEN.		0.044	0.000	FLORIDAN AQF.
SUNLAND CENTER	INSTITUTIONAL		0.219	0.000	FLORIDAN AQF.
UNIVERSITY OF FLORIDA	INSTITUTIONAL		1.708	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-2. WATER USE BY CROP FOR ALACHUA COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	TOTAL
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	300	200	0.17	0.00	0.00	0.17
PEPPERS	250	200	0.17	0.00	0.00	0.17
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	75	50	0.06	0.00	0.00	0.06
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	680	680	0.59	0.00	0.00	0.59
FRUIT CROPS						
BLUEBERRIES	385	350	0.33	0.00	0.00	0.33
CITRUS	0	0	0.00	0.00	0.00	0.00
GRAPES	30	30	0.04	0.00	0.00	0.04
PEACHES	15	15	0.03	0.01	0.00	0.04
PECANS	2,600	300	0.00	0.00	0.00	0.00
STRAWBERRIES	5	5	0.01	0.00	0.00	0.01
WATERMELLONS	500	400	0.43	0.00	0.00	0.43
MISC. FRUIT	90	80	0.11	0.00	0.00	0.11
FIELD CROPS						
FIELD CORN	1,200	100	0.09	0.02	0.00	0.11
PEANUTS	200	100	0.05	0.01	0.00	0.06
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	4,000	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	200	0	0.00	0.00	0.00	0.00
MISC. GRAINS	1,500	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	1	1	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	3	3	0.01	0.00	0.00	0.01
WOODY ORNAMENTALS	60	50	0.24	0.00	0.00	0.24
IMPROVED PASTURE	28,500	680	0.65	0.00	0.00	0.65
SOD	100	40	0.08	0.00	0.00	0.08
TURF GRASS (GOLF)	480	328	0.91	0.10	0.00	1.01
TURF GRASS (OTHER)	406	406	0.71	0.00	0.00	0.71
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.16	0.00	0.00	0.16
FISH FARMING	0	0	0.00	0.00	0.00	0.00
=====						
	41,580	4,018	4.84	0.14	0.00	4.98
SPRINKLER ACREAGE	3,397	4,018				
LOW PRESSURE ACREAGE	581					
FLOOD ACREAGE	40					

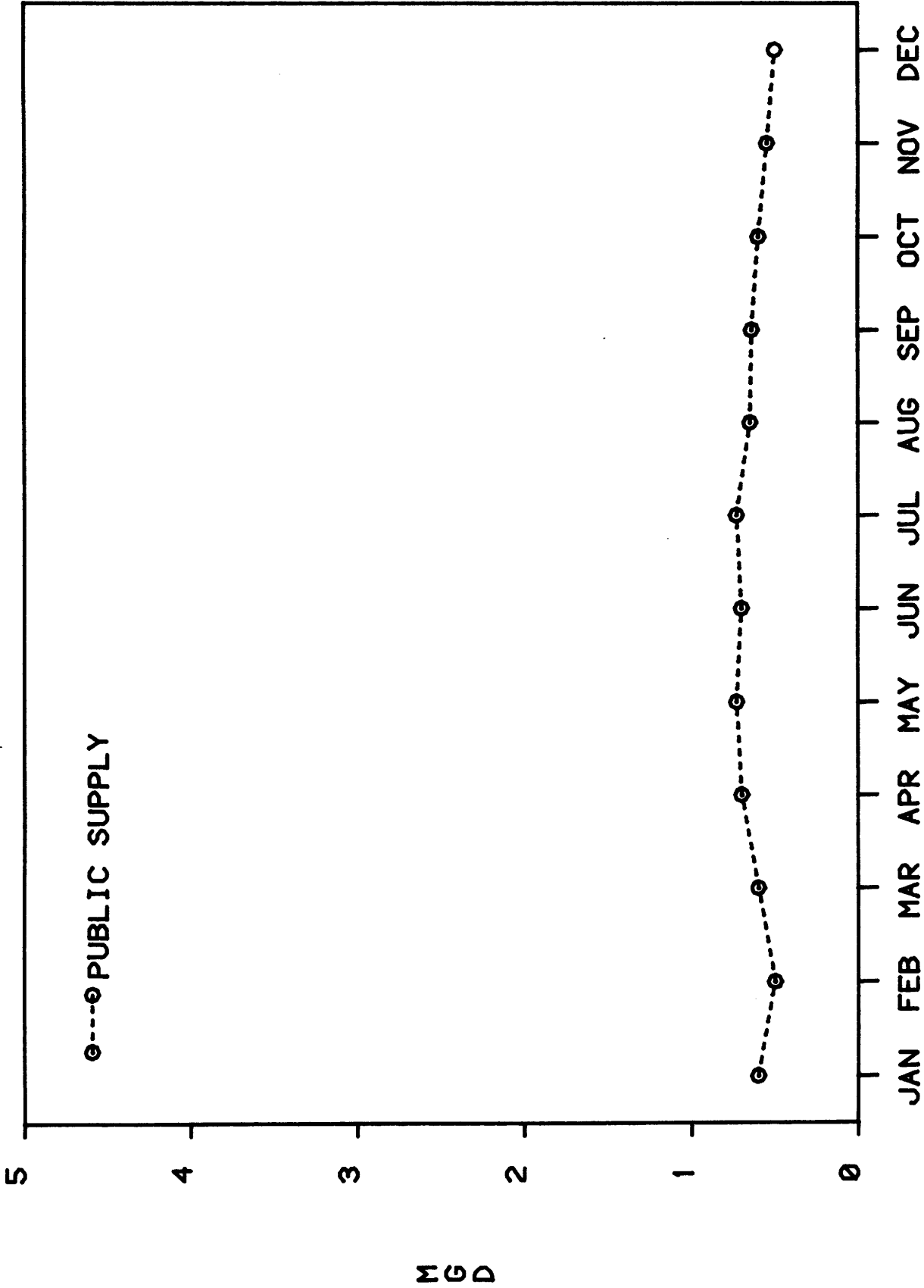


FIGURE A-4. MONTHLY FRESH WATER USE IN BAKER COUNTY: 1986

MGD

BAKER COUNTY DATA - 1986

TOTAL POPULATION 17,784
 TOTAL LAND AREA 588 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 16,895
 PUBLIC SUPPLY 4,298
 SELF-SUPPLIED 12,596
 PER CAPITA 146

LAND AREA (ACRES)
 TOTAL AREA 343,040 536 SQ. MILES
 FARMED 13,999
 IRRIGATED 640

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	0.63	0.00	0.63	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	1.84	0.00	1.84	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.18	0.00	0.18	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	2.95	2.19	5.14	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5.60	2.19	7.79	0.00	0.00	0.00	0.00
TOTAL GROUND	5.60						
TOTAL SURFACE		2.19					
COUNTY TOTAL		7.79					

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN BAKER COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
MACCLENNY - CITY OF	PUBLIC SUPPLY	4,168	0.618	0.000	FLORIDAN AQF.
MACCLENNY S/D	PUBLIC SUPPLY	130	0.011	0.000	FLORIDAN AQF.
NORTHEAST FLA. STATE HOSPITAL	INSTITUTIONAL		0.181	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-3. WATER USE BY CROP FOR BAKER COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	100	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	100	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	522	100	0.09	0.00	0.00	0.09
FRUIT CROPS						
BLUEBERRIES	25	0	0.00	0.00	0.00	0.00
CITRUS	0	0	0.00	0.00	0.00	0.00
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	50	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	400	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	600	0	0.00	0.00	0.00	0.00
PEANUTS	50	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	599	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	145	80	0.00	0.07	0.00	0.07
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	1,584	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	0	0	0.00	0.00	0.00	0.00
WOODY ORNAMENTALS	1,200	400	2.30	1.53	0.00	3.83
IMPROVED PASTURE	8,500	0	0.00	0.00	0.00	0.00
SOD	0	0	0.00	0.00	0.00	0.00
TURF GRASS (GOLF)	124	60	0.15	0.00	0.00	0.15
TURF GRASS (OTHER)	0	0	0.00	0.00	0.00	0.00
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.41	0.59	0.00	1.00
FISH FARMING	0	0	0.00	0.00	0.00	0.00
=====						
	13,999	640	2.95	2.19	0.00	5.14
=====						
SPRINKLER ACREAGE	640	640				
LOW PRESSURE ACREAGE	0					
FLOOD ACREAGE	0					

THE PUBLIC SUPPLY PUMPAGE IN BRADFORD COUNTY
WITHIN THE ST. JOHNS RIVER WATER MANAGEMENT
DISTRICT FOR 1986 WAS TOO SMALL TO DEPICT.

BRADFORD COUNTY DATA - 1986

TOTAL POPULATION 23,476
 TOTAL LAND AREA 305 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 1,700
 PUBLIC SUPPLY 340
 SELF-SUPPLIED 1,360
 PER CAPITA 170

LAND AREA (ACRES)
 TOTAL AREA 3,840 6 SQ. MILES
 FARMED 40
 IRRIGATED 30

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	0.03	0.00	0.03	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	0.23	0.00	0.23	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	0.08	0.00	0.08	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.34	0.00	0.34	0.00	0.00	0.00	0.00
TOTAL GROUND		0.34					
TOTAL SURFACE		0.00					
COUNTY TOTAL		0.34					

BRADFORD

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN BRADFORD COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
SOUTHERN STATES UTILITIES	PUBLIC SUPPLY	340	0.031	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-4. WATER USE BY CROP FOR BRADFORD COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	0	0	0.00	0.00	0.00	0.00
FRUIT CROPS						
BLUEBERRIES	0	0	0.00	0.00	0.00	0.00
CITRUS	0	0	0.00	0.00	0.00	0.00
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	0	0	0.00	0.00	0.00	0.00
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	0	0	0.00	0.00	0.00	0.00
WOODY ORNAMENTALS	0	0	0.00	0.00	0.00	0.00
IMPROVED PASTURE	0	0	0.00	0.00	0.00	0.00
SOD	0	0	0.00	0.00	0.00	0.00
TURF GRASS (GOLF)	40	30	0.08	0.00	0.00	0.08
TURF GRASS (OTHER)	0	0	0.00	0.00	0.00	0.00
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.00	0.00	0.00	0.00
FISH FARMING	0	0	0.00	0.00	0.00	0.00
TOTAL						
	40	30	0.08	0.00	0.00	0.08
IRRIGATION METHODS						
SPRINKLER ACREAGE	30	30				
LOW PRESSURE ACREAGE	0					
FLOOD ACREAGE	0					

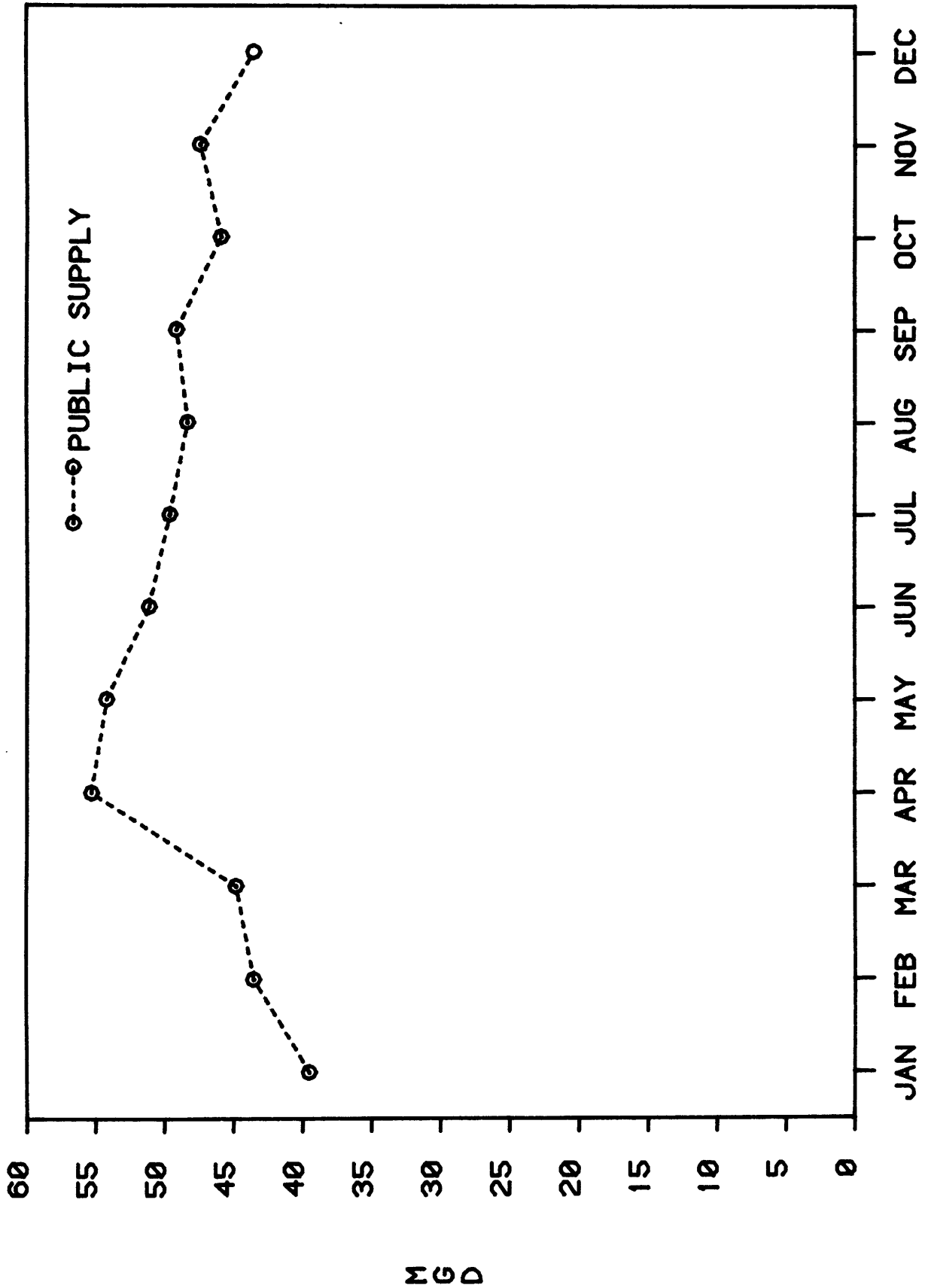


FIGURE A-5. MONTHLY FRESH WATER USE IN BREVARD COUNTY: 1986

BREVARD COUNTY DATA - 1986

TOTAL POPULATION 357,033
 TOTAL LAND AREA 1,310 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 357,033
 PUBLIC SUPPLY 317,524
 SELF-SUPPLIED 39,509
 PER CAPITA 150

LAND AREA (ACRES)
 TOTAL AREA 636,800 1,310 SQ. MILES
 FARMED 152,766
 IRRIGATED 105,437

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY (1)(2)	9.59	15.47	25.06	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	5.92	0.00	5.92	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.57	0.00	0.57	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	107.13	10.87	118.00	0.00	0.00	0.00	0.66
POWER GENERATION S-S	0.28	0.00	0.28	0.00	1,089.21	1,089.21	0.00
MISCELLANEOUS	44.23	0.00	44.23	0.00	0.00	0.00	0.00
	167.72	26.34	194.06	0.00	1,089.21	1,089.21	0.66
TOTAL GROUND	167.72						
TOTAL SURFACE		1,115.55					
COUNTY TOTAL (3)		1,283.27					

(1) INCLUDES 0.07 Mgal/d OF SALINE GROUND WATER USED IN R/O FOR PUBLIC SUPPLY.

(2) DOES NOT INCLUDE 22.47 Mgal/d OF WATER WITHDRAWN IN ORANGE COUNTY FOR PUBLIC SUPPLY USE IN BREVARD COUNTY.

(3) REUSE AMOUNTS ARE NOT INCLUDED IN TOTAL.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN BREVARD COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
AQUARINA UTILITIES	PUBLIC SUPPLY	170	0.018	0.000	FLORIDAN AQF.
AVATAR (BAREFOOT BAY) UTILITY	PUBLIC SUPPLY	5,216	0.552	0.000	SURFICIAL AQF.
COCOA WATER UTILITIES	PUBLIC SUPPLY	118,340	22.474	0.000	FLORIDAN AQF.
GDU - PALM BAY	PUBLIC SUPPLY	25,134	3.594	0.000	SURFICIAL AQF.
MELBOURNE - CITY OF	PUBLIC SUPPLY	123,690	0.000	15.469	LAKE WASHINGTON
N. BREVARD UTILITIES (MIMS)	PUBLIC SUPPLY	5,093	0.459	0.000	SURFICIAL AQF.
S. BREVARD UTILITIES (SUNNYLAND)	PUBLIC SUPPLY	430	0.049	0.000	FLORIDAN AQF.
TITUSVILLE - CITY OF	PUBLIC SUPPLY	39,451	4.922	0.000	FLORIDAN AQF.
FLORIDA DOT - I95 REST FAC.	INSTITUTIONAL		0.015	0.000	SURFICIAL AQF.
FLORIDA POWER & LIGHT	POWER GEN.		0.175	509.370	SURFICIAL AQF. & INDIAN RIVER
HARRIS CORP.	INDUSTRIAL		0.432	0.000	SURFICIAL AQF.
ORLANDO UTILITIES COMMISSION	POWER GEN.		0.108	579.841	SURFICIAL AQF. & INDIAN RIVER
UNION CARBIDE INC.	INDUSTRIAL		0.118	0.000	SURFICIAL AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-5. WATER USE BY CROP FOR BREVARD COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	4,000	4,000	3.65	0.00	0.00	3.65
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	300	300	0.32	0.00	0.00	0.32
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	500	500	0.57	0.00	0.00	0.57
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	0	0	0.00	0.00	0.00	0.00
FRUIT CROPS						
BLUEBERRIES	0	0	0.00	0.00	0.00	0.00
CITRUS	18,000	10,880	14.94	3.74	0.00	18.68
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	200	200	0.18	0.04	0.00	0.22
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	2,000	2,000	3.01	0.00	0.00	3.01
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	1,800	1,800	1.85	0.00	0.00	1.85
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	1,000	1,000	1.17	0.00	0.00	1.17
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	1	1	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	10	10	0.05	0.00	0.00	0.05
WOODY ORNAMENTALS	190	190	0.60	0.00	0.00	0.60
IMPROVED PASTURE	121,700	81,860	75.99	3.18	0.00	79.17
SOD	1,000	1,000	1.44	1.44	0.00	2.88
TURF GRASS (GOLF)	1,692	1,323	1.47	2.44	0.66	3.91
TURF GRASS (OTHER)	373	373	0.80	0.03	0.00	0.83
MISC. AGRICULTURAL						
LIVESTOCK	0	0	1.09	0.00	0.00	1.09
FISH FARMING	0	0	0.00	0.00	0.00	0.00
TOTAL						
	152,766	105,437	107.13	10.87	0.66	118.00
SPRINKLER ACREAGE						
SPRINKLER ACREAGE	6,596	105,437				
LOW PRESSURE ACREAGE						
LOW PRESSURE ACREAGE	881					
FLOOD ACREAGE						
FLOOD ACREAGE	97,960					

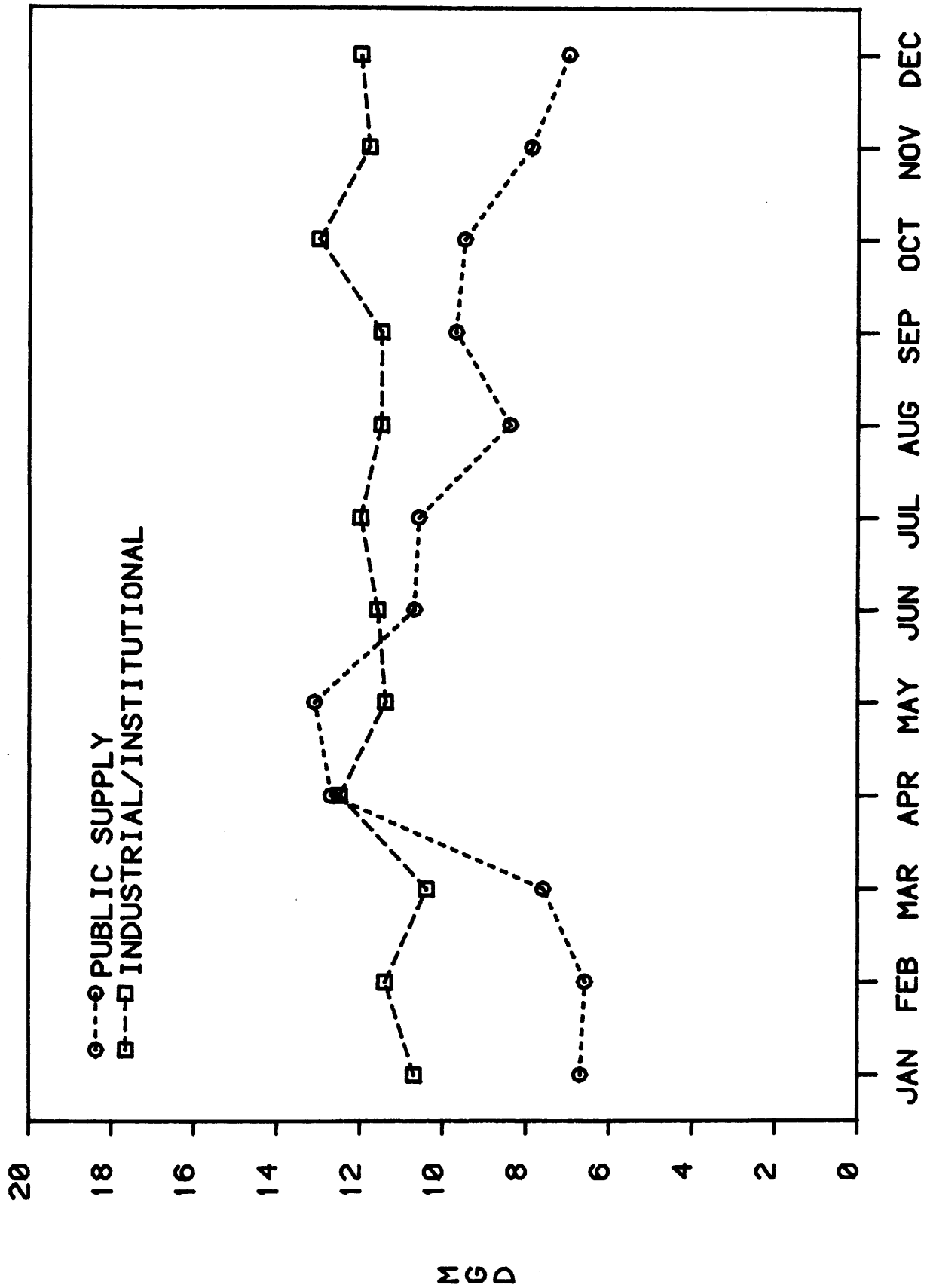


FIGURE A-6. MONTHLY FRESH WATER USE IN CLAY COUNTY: 1986

CLAY COUNTY DATA - 1986

TOTAL POPULATION 89,543
 TOTAL LAND AREA 644 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 89,543
 PUBLIC SUPPLY 65,937
 SELF-SUPPLIED 23,606
 PER CAPITA 140

LAND AREA (ACRES)
 TOTAL AREA 411,520 643 SQ. MILES
 FARMED 44,241
 IRRIGATED 710

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	9.23	0.00	9.23	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	3.31	0.00	3.31	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	7.05	4.43	11.48	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	3.02	0.43	3.45	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.36	0.00	0.36	0.00	0.00	0.00	0.00
	22.97	4.86	27.83	0.00	0.00	0.00	0.00
TOTAL GROUND	22.97						
TOTAL SURFACE		4.86					
COUNTY TOTAL		27.83					

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN CLAY COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
CLAY UTILITY CO.	PUBLIC SUPPLY	5,177	0.593	0.000	FLORIDAN AQF.
GREEN COVE SPRINGS - CITY OF	PUBLIC SUPPLY	4,484	0.754	0.000	FLORIDAN AQF.
KEYSTONE HEIGHTS - CITY OF	PUBLIC SUPPLY	2,700	0.459	0.000	FLORIDAN AQF.
KINGSLEY SERVICE CO.	PUBLIC SUPPLY	40,662	5.599	0.000	FLORIDAN AQF.
LAKE ASBURY UTILITIES	PUBLIC SUPPLY	1,298	0.133	0.000	FLORIDAN AQF.
MAGNOLIA SPRINGS UTILITIES	PUBLIC SUPPLY	800	0.098	0.000	FLORIDAN AQF.
ORANGE PARK - TOWN OF	PUBLIC SUPPLY	9,650	1.532	0.000	FLORIDAN AQF.
PENNY FARMS - TOWN OF	PUBLIC SUPPLY	666	0.033	0.000	FLORIDAN AQF.
THE RAVINES VILLAGE & RESORT	PUBLIC SUPPLY	500	0.031	0.000	FLORIDAN AQF.
ASSOCIATED MINERALS	INDUSTRIAL		1.986	0.000	FLORIDAN AQF.
CAMP BLANDING MILITARY BASE	INSTITUTIONAL		0.411	0.000	FLORIDAN AQF.
E.I. DUPONT DE NEMOURS MINERALS	INDUSTRIAL		2.252	0.000	FLORIDAN AQF.
FLORIDA ROCK - KEYSTONE MINE	INDUSTRIAL		2.078	4.430	FLORIDAN AQF. & UNNAMED POND
J-M MANUFACTURING CO.	INDUSTRIAL		0.061	0.000	FLORIDAN AQF.
REYNOLDS INDUSTRIAL PARK	INDUSTRIAL		0.265	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-6. WATER USE BY CROP FOR CLAY COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	200	58	0.08	0.00	0.00	0.08
FRUIT CROPS						
BLUEBERRIES	15	10	0.01	0.00	0.00	0.01
CITRUS	0	0	0.00	0.00	0.00	0.00
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	500	0	0.00	0.00	0.00	0.00
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	2,800	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	50	50	0.24	0.00	0.00	0.24
WOODY ORNAMENTALS	0	0	0.00	0.00	0.00	0.00
IMPROVED PASTURE	40,000	66	0.06	0.00	0.00	0.06
SOD	0	0	0.00	0.00	0.00	0.00
TURF GRASS (GOLF)	530	380	0.88	0.43	0.00	1.31
TURF GRASS (OTHER)	146	146	0.32	0.00	0.00	0.32
MISC. AGRICULTURAL						
LIVESTOCK	0	0	1.43	0.00	0.00	1.43
FISH FARMING	0	0	0.00	0.00	0.00	0.00
TOTALS						
	44,241	710	3.02	0.43	0.00	3.45
IRRIGATION METHODS						
SPRINKLER ACREAGE	634	710				
LOW PRESSURE ACREAGE	0					
FLOOD ACREAGE	76					

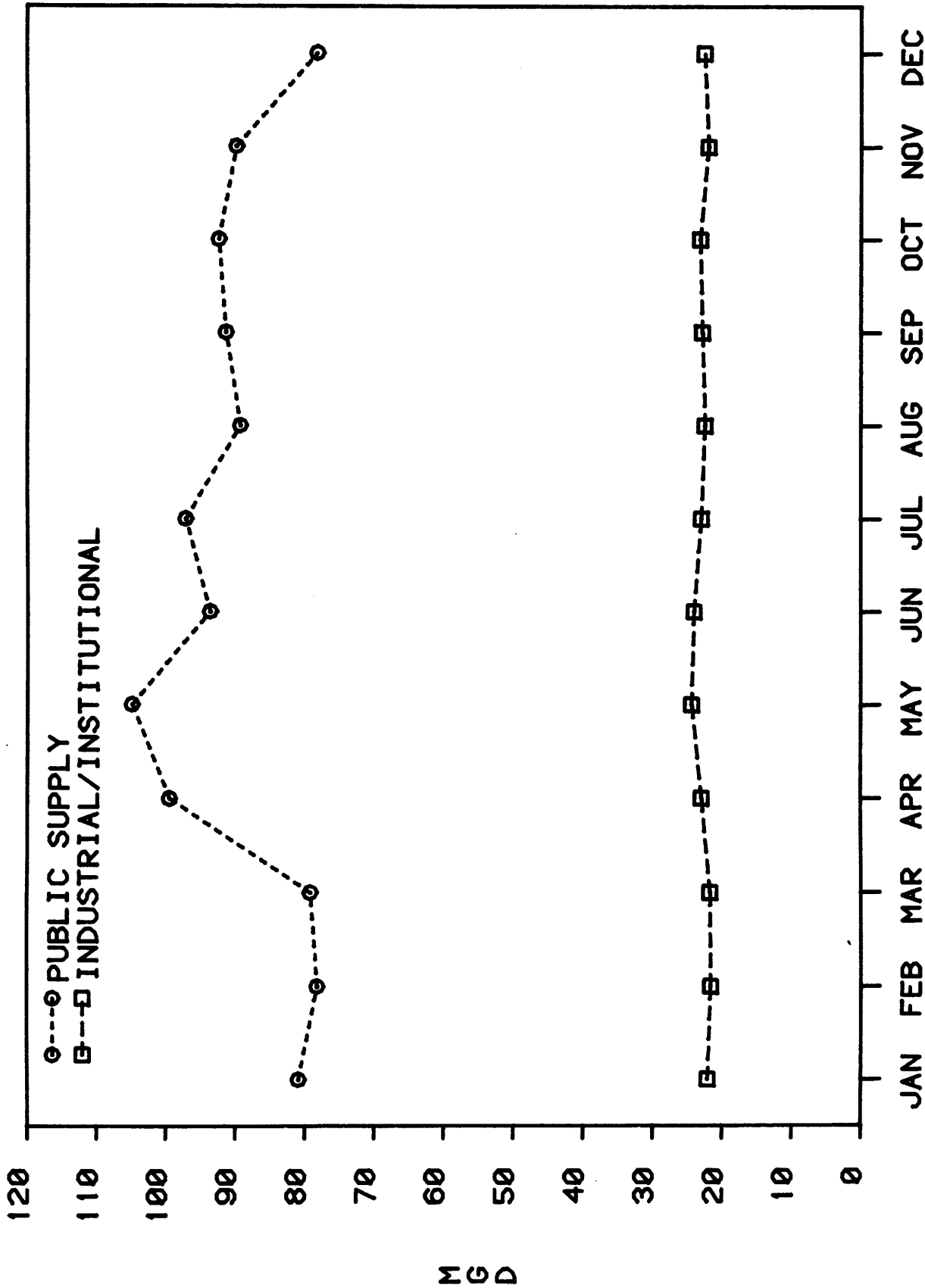


FIGURE A-7. MONTHLY FRESH WATER USE IN DUVAL COUNTY: 1986

DUVAL COUNTY DATA - 1986

TOTAL POPULATION 645,709
 TOTAL LAND AREA 840 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 645,709
 PUBLIC SUPPLY 544,394
 SELF-SUPPLIED 101,315
 PER CAPITA 164

LAND AREA (ACRES)
 TOTAL AREA 537,600 840 SQ. MILES
 FARMED 16,167
 IRRIGATED 2,684

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	89.20	0.00	89.20	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	16.62	0.00	16.62	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	22.82	0.00	22.82	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	15.62	1.22	16.84	0.00	0.00	0.00	1.19
POWER GENERATION S-S	3.09	0.00	3.09	0.00	217.45	217.45	0.00
MISCELLANEOUS	6.14	0.00	6.14	0.00	0.00	0.00	0.00
	153.49	1.22	154.71	0.00	217.45	217.45	1.19
TOTAL GROUND	153.49						
TOTAL SURFACE		218.67					
COUNTY TOTAL (1)		372.16					

(1) REUSE AMOUNTS ARE NOT INCLUDED IN TOTAL.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN DUVAL COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
ATLANTIC BEACH - CITY OF	PUBLIC SUPPLY	11,568	2.149	0.000	FLORIDAN AQF.
BEAULERC UTILITIES	PUBLIC SUPPLY	6,670	0.631	0.000	FLORIDAN AQF.
BALDWIN - CITY OF	PUBLIC SUPPLY	1,768	0.269	0.000	FLORIDAN AQF.
CANAL UTILITIES	PUBLIC SUPPLY	6,706	1.625	0.000	FLORIDAN AQF.
COLONY MHP	PUBLIC SUPPLY	962	0.091	0.000	FLORIDAN AQF.
COMMERCIAL UTILITIES	PUBLIC SUPPLY	1,200	0.106	0.000	FLORIDAN AQF.
DULAY UTILITIES (ARGYLE F.)	PUBLIC SUPPLY	3,065	0.433	0.000	FLORIDAN AQF.
DUVAL UTILITY CO.	PUBLIC SUPPLY	1,858	0.290	0.000	FLORIDAN AQF.
HARBOR VIEW S/D	PUBLIC SUPPLY	2,100	0.197	0.000	FLORIDAN AQF.
JACKSONVILLE BEACH - CITY OF	PUBLIC SUPPLY	18,546	2.916	0.000	FLORIDAN AQF.
JACKSONVILLE - CITY OF	PUBLIC SUPPLY	348,196	60.274	0.000	FLORIDAN AQF.
JACKSONVILLE SUBURBAN UTILITIES	PUBLIC SUPPLY	72,612	9.448	0.000	FLORIDAN AQF.
LAMPLIGHTER MHP	PUBLIC SUPPLY	735	0.129	0.000	FLORIDAN AQF.
LONDONTOWNE APARTMENTS	PUBLIC SUPPLY	1,125	0.126	0.000	FLORIDAN AQF.
MANDARIN UTILITIES	PUBLIC SUPPLY	29,203	4.305	0.000	FLORIDAN AQF.
NEIGHBORHOOD UTILITIES	PUBLIC SUPPLY	543	0.039	0.000	FLORIDAN AQF.
NEPTUNE BEACH - CITY OF	PUBLIC SUPPLY	6,273	1.281	0.000	FLORIDAN AQF.
NORMANDY VILLAGE UTILITIES	PUBLIC SUPPLY	2,871	0.365	0.000	FLORIDAN AQF.
ORTEGA UTILITIES	PUBLIC SUPPLY	4,423	0.868	0.000	FLORIDAN AQF.
REGENCY UTILITIES	PUBLIC SUPPLY	4,900	0.765	0.000	FLORIDAN AQF.
SHADOWROCK UTILITIES	PUBLIC SUPPLY	1,250	0.183	0.000	FLORIDAN AQF.
SOUTHERN GULF UTILITIES	PUBLIC SUPPLY	2,380	0.256	0.000	FLORIDAN AQF.
SOUTHERN STATES UTILITIES	PUBLIC SUPPLY	8,628	1.225	0.000	FLORIDAN AQF.
SOUTHSIDE UTILITIES	PUBLIC SUPPLY	6,037	1.027	0.000	FLORIDAN AQF.
WONDERWOOD MHP	PUBLIC SUPPLY	775	0.202	0.000	FLORIDAN AQF.
ALTON PACKAGING CO.	INDUSTRIAL		7.547	0.000	FLORIDAN AQF.
CASTLETON BEVERAGE CO.	INDUSTRIAL		0.114	0.000	FLORIDAN AQF.
CECIL FIELD NAS	INSTITUTIONAL		0.862	0.000	FLORIDAN AQF.
CELOTEX GYPSUM CO.	INDUSTRIAL		0.081	0.000	FLORIDAN AQF.
DUVAL CORRECTIONAL FAC.	INSTITUTIONAL		0.120	0.000	FLORIDAN AQF.
EASTPORT POWER PLANT	POWER GEN.		0.893	0.000	FLORIDAN AQF. & ST.JOHNS RIVER
FLORIDA DOT - I10 REST FAC.	INSTITUTIONAL		0.010	0.000	FLORIDAN AQF.
FLORIDA WIRE & CABLE CO.	INDUSTRIAL		0.129	0.000	FLORIDAN AQF.
JACKSONVILLE ELECTIC AUTHORITY	POWER GEN.		2.201	217.449	FLORIDAN AQF. & ST.JOHNS RIVER
JACKSONVILLE INT. AIRPORT	INSTITUTIONAL		0.184	0.000	FLORIDAN AQF.
JACKSONVILLE KRAFT PAPER CO.	INDUSTRIAL		0.004	0.000	FLORIDAN AQF.
JACKSONVILLE NAS	INSTITUTIONAL		2.527	0.000	FLORIDAN AQF.
JACKSONVILLE PORT AUTHORITY	INDUSTRIAL		0.060	0.000	FLORIDAN AQF.
JACKSONVILLE SHIPYARD	INDUSTRIAL		0.259	0.000	FLORIDAN AQF.
JACKSONVILLE UNIVERSITY	INSTITUTIONAL		0.368	0.000	FLORIDAN AQF.
JACKSONVILLE ZOO	INSTITUTIONAL		0.261	0.000	FLORIDAN AQF.
MAYPORT NAS	INSTITUTIONAL		2.559	0.000	FLORIDAN AQF.
REICHOLD CHEMICAL CO.	INDUSTRIAL		0.903	0.000	FLORIDAN AQF.
SCM ORGANIC CHEMICAL CO.	INDUSTRIAL		2.101	0.000	FLORIDAN AQF.
SIMPLEX MAN. CO.	INDUSTRIAL		0.074	0.000	FLORIDAN AQF.
SWISHER & SON MAN. CO.	INDUSTRIAL		0.063	0.000	FLORIDAN AQF.
UNION CAMP INC.	INDUSTRIAL		4.336	0.000	FLORIDAN AQF.
US GYPSUM CO.	INDUSTRIAL		0.260	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-7. WATER USE BY CROP FOR DUVAL COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	TOTAL
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	200	4	0.00	0.00	0.00	0.00
FRUIT CROPS						
BLUEBERRIES	18	13	0.01	0.00	0.00	0.01
CITRUS	0	0	0.00	0.00	0.00	0.00
GRAPES	10	7	0.01	0.00	0.00	0.01
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	200	0	0.00	0.00	0.00	0.00
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	15	15	0.03	0.00	0.00	0.03
WOODY ORNAMENTALS	57	57	0.24	0.00	0.00	0.24
IMPROVED PASTURE	12,000	500	0.89	0.18	0.00	1.07
SOD	525	525	0.04	0.06	1.19	0.10
TURF GRASS (GOLF)	2,992	1,413	3.90	0.98	0.00	4.88
TURF GRASS (OTHER)	150	150	0.34	0.00	0.00	0.34
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.71	0.00	0.00	0.71
AESTHETIC/WILDLIFE	0	0	9.45	0.00	0.00	9.45
=====						
	16,167	2,684	15.62	1.22	1.19	16.84
=====						
SPRINKLER ACREAGE	2,600	2,684				
LOW PRESSURE ACREAGE	44					
FLOOD ACREAGE	40					

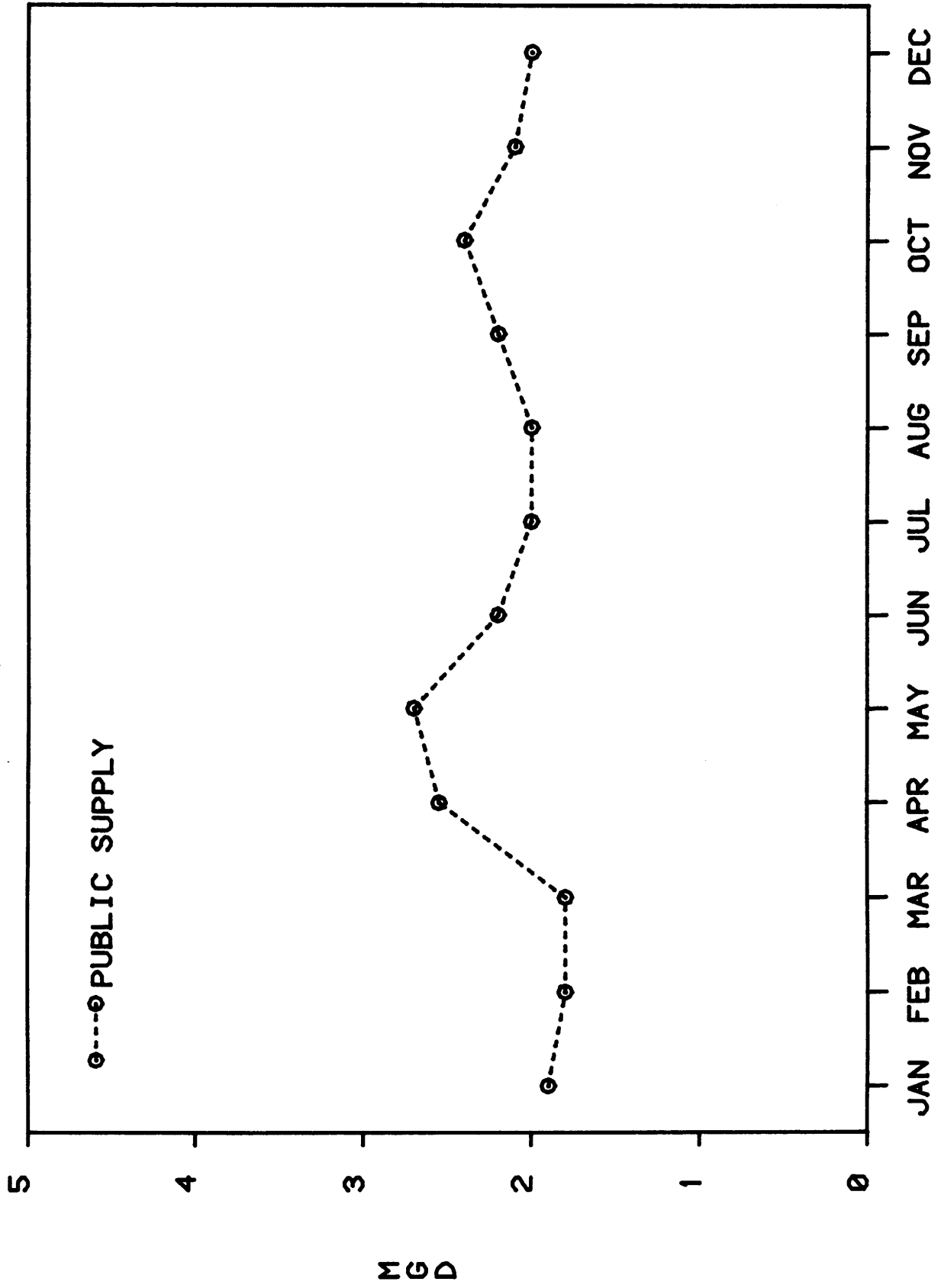


FIGURE A-8. MONTHLY FRESH WATER USE IN FLAGLER COUNTY: 1986

FLAGLER COUNTY DATA - 1986

TOTAL POPULATION 17,482
 TOTAL LAND AREA 504 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 17,482
 PUBLIC SUPPLY 15,497
 SELF-SUPPLIED 1,985
 PER CAPITA 137

LAND AREA (ACRES)
 TOTAL AREA 322,560 504 SQ. MILES
 FARMED 23,985
 IRRIGATED 6,680

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	2.12	0.00	2.12	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	0.27	0.00	0.27	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.13	0.00	0.13	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	6.89	1.33	8.22	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.01	0.00	0.01	0.00	0.00	0.00	0.00
	9.42	1.33	10.75	0.00	0.00	0.00	0.00
TOTAL GROUND		9.42					
TOTAL SURFACE		1.33					
COUNTY TOTAL		10.75					

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN FLAGLER COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL (MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
BEVERLY BEACH UTILITY	PUBLIC SUPPLY	329	0.024	0.000	FLORIDAN AQF.
BUNNELL - CITY OF	PUBLIC SUPPLY	2,035	0.225	0.000	FLORIDAN AQF.
FLAGLER BEACH - CITY OF	PUBLIC SUPPLY	3,075	0.421	0.000	FLORIDAN AQF.
PALM COAST UTILITIES	PUBLIC SUPPLY	9,970	1.444	0.000	SURFICIAL AQF.
PLANTATION BAY	PUBLIC SUPPLY	88	0.007	0.000	FLORIDAN AQF.
BULOW KOA	INSTITUTIONAL		0.043	0.000	FLORIDAN AQF.
HOLIDAY TRAVEL PARK	INSTITUTIONAL		0.018	0.000	FLORIDAN AQF.
MARINELAND	INSTITUTIONAL		0.040	0.000	FLORIDAN AQF.
RINKER CEMENT	INDUSTRIAL		0.033	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-8. WATER USE BY CROP FOR FLAGLER COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	2,000	2,000	2.09	0.00	0.00	2.09
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	100	100	0.00	0.00	0.00	0.00
POTATOES	1,900	1,900	2.77	0.00	0.00	2.77
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	1,000	1,000	0.22	0.00	0.00	0.22
FRUIT CROPS						
BLUEBERRIES	0	0	0.00	0.00	0.00	0.00
CITRUS	0	0	0.00	0.00	0.00	0.00
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	100	100	0.11	0.00	0.00	0.11
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	400	400	0.76	0.00	0.00	0.76
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	1,500	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	0	0	0.00	0.00	0.00	0.00
WOODY ORNAMENTALS	0	0	0.00	0.00	0.00	0.00
IMPROVED PASTURE	16,500	695	0.67	0.00	0.00	0.67
SOD	50	50	0.10	0.00	0.00	0.10
TURF GRASS (GOLF)	362	362	0.15	1.17	0.00	1.32
TURF GRASS (OTHER)	73	73	0.01	0.15	0.00	0.16
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.01	0.01	0.00	0.02
FISH FARMING	0	0	0.00	0.00	0.00	0.00
	23,985	6,680	6.89	1.33	0.00	8.22
SPRINKLER ACREAGE	2,980	6,680				
LOW PRESSURE ACREAGE	0					
FLOOD ACREAGE	3,700					

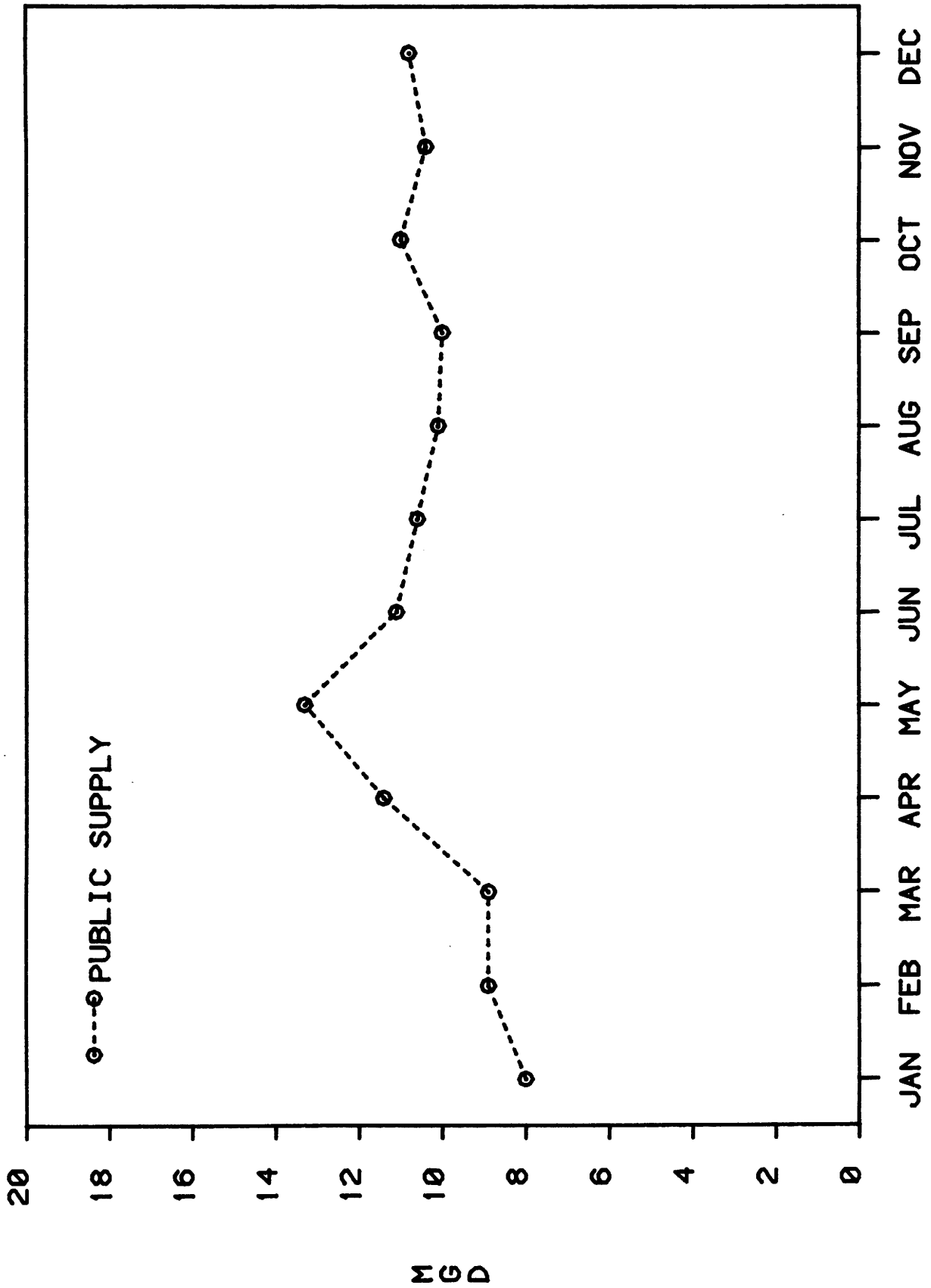


FIGURE A-9. MONTHLY FRESH WATER USE IN INDIAN R. COUNTY: 1986

INDIAN RIVER COUNTY DATA - 1986

TOTAL POPULATION 80,023
 TOTAL LAND AREA 549 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 80,023
 PUBLIC SUPPLY 46,541
 SELF-SUPPLIED 33,482
 PER CAPITA 223

LAND AREA (ACRES)
 TOTAL AREA 351,360 549 SQ. MILES
 FARMED 139,371
 IRRIGATED 96,702

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY (1)	10.38	0.00	10.38	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	7.47	0.00	7.47	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.18	0.00	0.18	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	44.23	114.25	158.48	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.24	0.00	0.24	0.00	16.91	16.91	0.00
MISCELLANEOUS	0.49	0.00	0.49	0.00	0.00	0.00	0.00
	62.99	114.25	177.24	0.00	16.91	16.91	0.00
TOTAL GROUND		62.99					
TOTAL SURFACE		131.16					
COUNTY TOTAL		194.15					

(1) INCLUDES 1.65 Mgal/d OF SALINE GROUND WATER USED IN R/O FOR PUBLIC SUPPLY.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN INDIAN RIVER COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
BENT PINES UTILITIES	PUBLIC SUPPLY	400	0.028	0.000	SURFICIAL AQF.
GDU - VERO HIGHLANDS/SHORES	PUBLIC SUPPLY	2,328	0.000	0.000	SURFICIAL AQF.
GDU - SEBASTIAN HIGHLANDS	PUBLIC SUPPLY	1,911	0.210	0.000	FLORIDAN AQF.
INDIAN RIVER COUNTY UTILITIES	PUBLIC SUPPLY	14,945	1.308	0.000	FLORIDAN AQF.
LAKEWOOD VILLAGE	PUBLIC SUPPLY	1,095	0.112	0.000	SURFICIAL AQF.
NORTH BEACH UTILITIES	PUBLIC SUPPLY	730	0.165	0.000	FLORIDAN AQF.
VERO BEACH - CITY OF	PUBLIC SUPPLY	23,000	8.319	0.000	SURFICIAL & FLORIDAN AQF.
VILLAGE GREEN MHP	PUBLIC SUPPLY	1,432	0.176	0.000	FLORIDAN AQF.
WHISPERING PALMS MHP	PUBLIC SUPPLY	700	0.061	0.000	FLORIDAN AQF.
INDIAN RIVER CORRECTIONAL FAC.	INSTITUTIONAL		0.041	0.000	SURFICIAL AQF.
OCEAN SPRAY PROCESSING PLANT	INDUSTRIAL		0.108	0.000	SURFICIAL & FLORIDAN AQF.
SEBASTIAN MEDICAL CENTER	INSTITUTIONAL		0.032	0.000	SURFICIAL AQF.
VERO BEACH MUN. POWER PLANT	POWER GEN.		0.241	16.909	FLORIDAN AQF. & INDIAN RIVER

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-9. WATER USE BY CROP FOR INDIAN RIVER COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	150	150	0.19	0.00	0.00	0.19
CARROTS	300	300	0.27	0.00	0.00	0.27
CUCUMBERS	5	5	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	10	10	0.01	0.00	0.00	0.01
SWEET CORN	650	650	0.09	0.64	0.00	0.73
WATERCRESS	75	75	0.62	0.00	0.00	0.62
MISC. VEGETABLES	1,200	1,200	0.60	1.32	0.00	1.92
FRUIT CROPS						
BLUEBERRIES	0	0	0.00	0.00	0.00	0.00
CITRUS	64,302	61,455	24.85	88.09	0.00	112.94
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	40	40	0.05	0.00	0.00	0.05
WATERMELLONS	100	100	0.13	0.00	0.00	0.13
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	7,100	7,100	0.00	10.67	0.00	10.67
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	200	200	0.00	0.39	0.00	0.39
SORGHUM	150	150	0.00	0.22	0.00	0.22
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	150	150	0.22	0.00	0.00	0.22
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	0	0	0.00	0.00	0.00	0.00
WOODY ORNAMENTALS	40	40	0.00	0.18	0.00	0.18
IMPROVED PASTURE	62,208	22,747	13.00	9.00	0.00	22.00
SOD	1,000	1,000	0.82	2.30	0.00	3.12
TURF GRASS (GOLF)	1,637	1,276	2.98	1.43	0.00	4.41
TURF GRASS (OTHER)	54	54	0.11	0.01	0.00	0.12
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.22	0.00	0.00	0.22
FISH FARMING	0	0	0.07	0.00	0.00	0.07
	139,371	96,702	44.23	114.25	0.00	158.48
SPRINKLER ACREAGE	2,087	96,702				
LOW PRESSURE ACREAGE	26,115					
FLOOD ACREAGE	68,500					

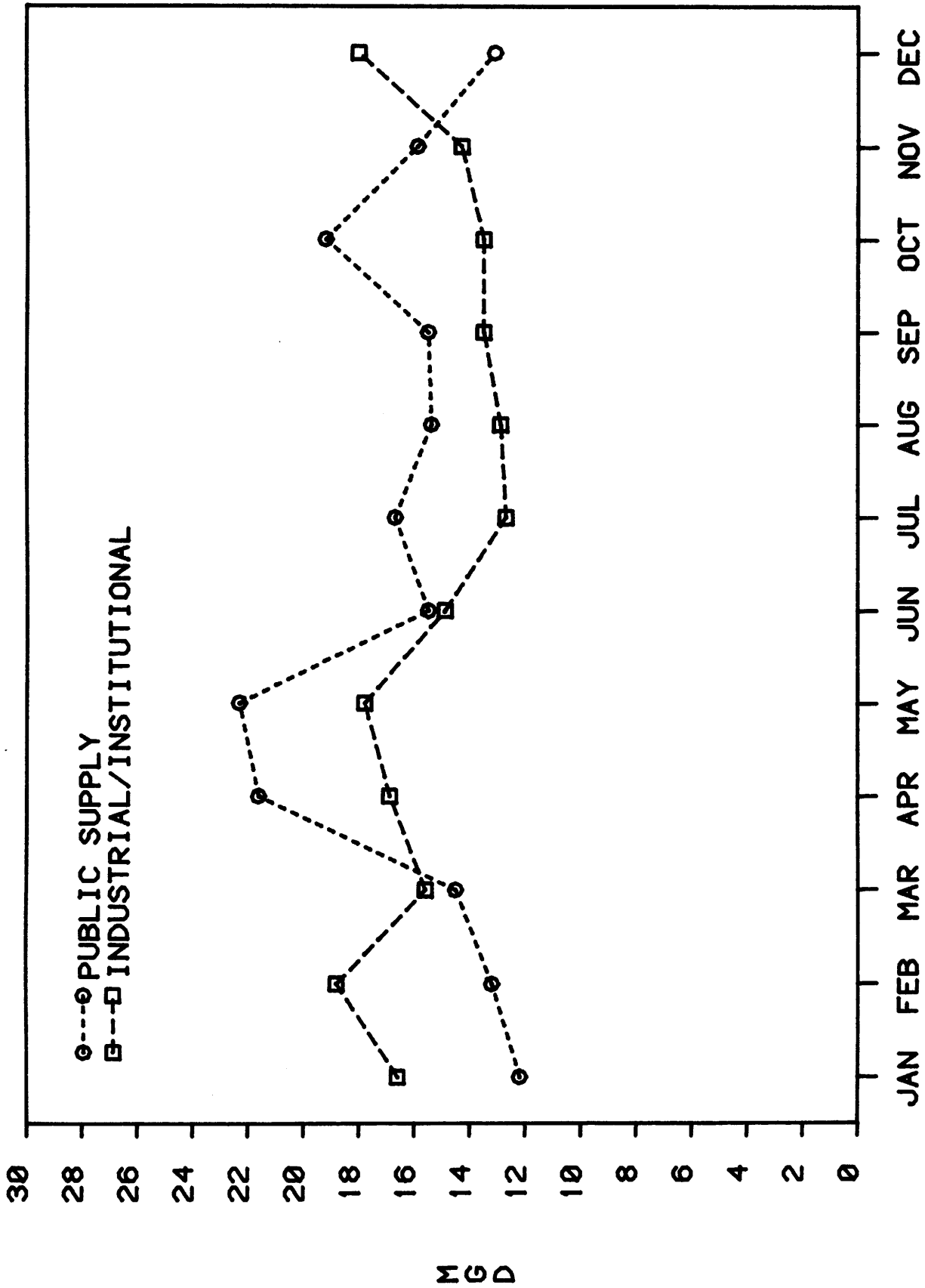


FIGURE A-10. MONTHLY FRESH WATER USE IN LAKE COUNTY: 1986

LAKE COUNTY DATA - 1986

TOTAL POPULATION 130,079
 TOTAL LAND AREA 1,163 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION

TOTAL 128,700
 PUBLIC SUPPLY 85,907
 SELF-SUPPLIED 42,793
 PER CAPITA 189

LAND AREA (ACRES)

TOTAL AREA 677,760 1,059 SQ. MILES
 FARMED 83,823
 IRRIGATED 31,237

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	16.25	0.00	16.25	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	8.09	0.00	8.09	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	11.53	3.94	15.47	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	33.28	8.41	41.69	0.00	0.00	0.00	3.07
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.49	0.00	0.49	0.00	0.00	0.00	0.00
	69.64	12.35	81.99	0.00	0.00	0.00	3.07
TOTAL GROUND	69.64						
TOTAL SURFACE		12.35					
COUNTY TOTAL (1)		81.99					

(1) REUSE AMOUNTS ARE NOT INCLUDED IN TOTAL.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN LAKE COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
ASTOR/ASTOR PARK WATER ASSOC.	PUBLIC SUPPLY	3,000	0.245	0.000	FLORIDAN AQF.
CLERMONT - CITY OF	PUBLIC SUPPLY	6,114	1.209	0.000	FLORIDAN AQF.
DEANZA - MID FLORIDA LAKES	PUBLIC SUPPLY	2,650	0.564	0.000	FLORIDAN AQF.
EUSTIS - CITY OF	PUBLIC SUPPLY	16,750	2.943	0.000	FLORIDAN AQF.
FRUITLAND PARK - CITY OF	PUBLIC SUPPLY	2,668	0.353	0.000	FLORIDAN AQF.
GROVELAND - CITY OF	PUBLIC SUPPLY	2,117	0.281	0.000	FLORIDAN AQF.
HAWTHORNE S/D	PUBLIC SUPPLY	2,796	0.420	0.000	FLORIDAN AQF.
HOWEY-IN-THE-HILLS - TOWN OF	PUBLIC SUPPLY	659	0.347	0.000	FLORIDAN AQF.
LAKE COUNTY UTILITIES	PUBLIC SUPPLY	550	0.071	0.000	FLORIDAN AQF.
LAKEVIEW TERRACE CENTER	PUBLIC SUPPLY	300	0.037	0.000	FLORIDAN AQF.
LEESBURG - CITY OF	PUBLIC SUPPLY	19,668	3.819	0.000	FLORIDAN AQF.
MASCOTTE - TOWN OF	PUBLIC SUPPLY	1,782	0.166	0.000	FLORIDAN AQF.
MINNEOLA - CITY OF	PUBLIC SUPPLY	1,156	0.170	0.000	FLORIDAN AQF.
MOLAKAI PARK WATER SYSTEM	PUBLIC SUPPLY	550	0.038	0.000	FLORIDAN AQF.
MONTVERDE - TOWN OF	PUBLIC SUPPLY	448	0.064	0.000	FLORIDAN AQF.
MOUNT DORA - CITY OF	PUBLIC SUPPLY	9,640	2.495	0.000	FLORIDAN AQF.
ORANGE BLOSSOM GARDENS MHP	PUBLIC SUPPLY	2,630	0.752	0.000	FLORIDAN AQF.
SILVER LAKE ESTATES UTILITY	PUBLIC SUPPLY	723	0.364	0.000	FLORIDAN AQF.
SOUTHERN STATES UTILITIES	PUBLIC SUPPLY	2,250	0.208	0.000	FLORIDAN AQF.
TRAVARES - CITY OF	PUBLIC SUPPLY	7,225	1.134	0.000	FLORIDAN AQF.
UMATILLA - CITY OF	PUBLIC SUPPLY	2,101	0.557	0.000	FLORIDAN AQF.
UTILITIES INC. OF FLORIDA	PUBLIC SUPPLY	130	0.009	0.000	FLORIDAN AQF.
B & W CANNING - GROVELAND PLANT	INDUSTRIAL		1.047	0.000	FLORIDAN AQF.
COCA COLA - LEESBURG PLANT	INDUSTRIAL		1.533	0.000	FLORIDAN AQF.
EUSTIS SAND CO.	INDUSTRIAL		1.184	0.000	FLORIDAN AQF.
FLORIDA ROCK - LAKE CO. MINE	INDUSTRIAL		0.658	3.944	FLORIDAN AQF. & UNNAMED POND
FLORIDA CHRUSED STONE	INDUSTRIAL		2.304	0.000	FLORIDAN AQF.
GOLDEM-GEM - UMATILLA PLANT	INDUSTRIAL		2.658	0.000	FLORIDAN AQF.
GROVELAND ACADAMY	INSTITUTIONAL		0.020	0.000	FLORIDAN AQF.
LAKE CORRECTION FAC.	INSTITUTIONAL		0.113	0.000	FLORIDAN AQF.
SILVER SAND CO. - CLERMONT MINE	INDUSTRIAL		1.299	0.000	FLORIDAN AQF.
SILVER SPRINGS CITRUS PLANT	INDUSTRIAL		0.578	0.000	FLORIDAN AQF.
SUNDOR BRANDS PROC. CO.	INDUSTRIAL		0.132	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-10. WATER USE BY CROP FOR LAKE COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	200	200	0.09	0.00	0.00	0.09
CARROTS	2,400	2,400	1.19	1.00	0.00	2.19
CUCUMBERS	200	200	0.06	0.00	0.00	0.06
PEPPERS	100	100	0.09	0.00	0.00	0.09
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	2	2	0.00	0.00	0.00	0.00
SWEET CORN	5,000	5,000	3.58	2.14	0.00	5.72
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	2,200	2,200	2.31	1.37	0.00	3.68
FRUIT CROPS						
BLUEBERRIES	55	55	0.08	0.00	0.00	0.08
CITRUS	18,000	16,000	16.90	2.38	0.59	19.28
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	10	10	0.02	0.00	0.00	0.02
PECANS	80	80	0.10	0.00	0.00	0.10
STRAWBERRIES	5	5	0.01	0.00	0.00	0.01
WATERMELLONS	500	500	0.52	0.00	0.00	0.52
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	2,000	500	0.46	0.11	0.00	0.57
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	300	150	0.11	0.00	0.00	0.11
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	400	400	1.93	0.00	0.00	1.93
FLOWERS & FOLIAGE	120	120	0.35	0.00	0.00	0.35
WOODY ORNAMENTALS	500	500	2.16	0.00	0.00	2.16
IMPROVED PASTURE	50,000	1,886	1.47	0.04	2.48	1.51
SOD	40	40	0.11	0.00	0.00	0.11
TURF GRASS (GOLF)	1,591	769	1.27	1.07	0.00	2.34
TURF GRASS (OTHER)	120	120	0.22	0.05	0.00	0.27
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.25	0.25	0.00	0.50
FISH FARMING	0	0	0.00	0.00	0.00	0.00
	83,823	31,237	33.28	8.41	3.07	41.69
SPRINKLER ACREAGE	12,705	31,237				
LOW PRESSURE ACREAGE	8,285					
FLOOD ACREAGE	10,247					

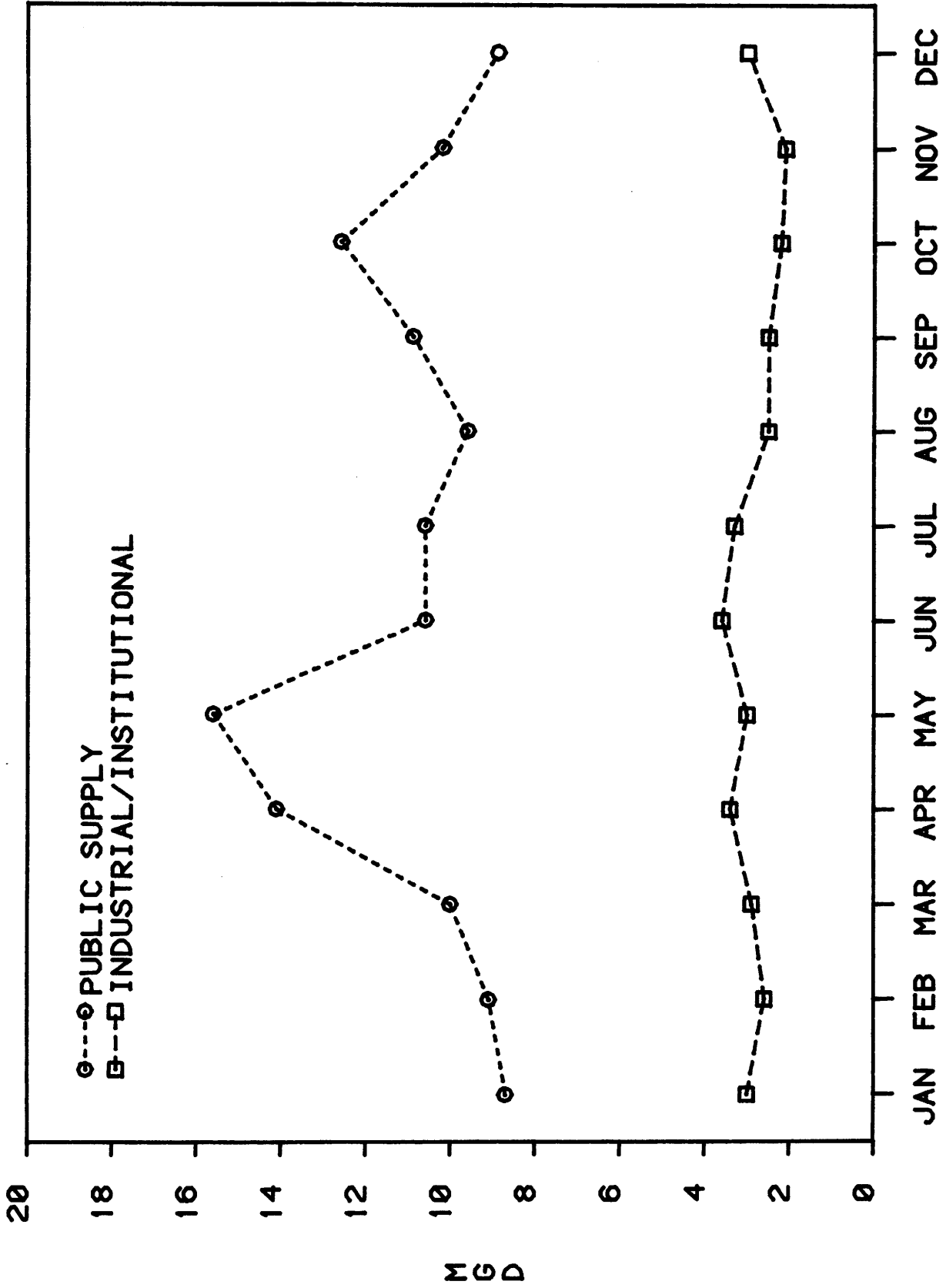


FIGURE A-11. MONTHLY FRESH WATER USE IN MARION COUNTY: 1986

MARION COUNTY DATA - 1986

TOTAL POPULATION 166,606
 TOTAL LAND AREA 1,652 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 138,950
 PUBLIC SUPPLY 67,827
 SELF-SUPPLIED 71,123
 PER CAPITA 161

LAND AREA (ACRES)
 TOTAL AREA 764,160 1,194 SQ. MILES
 FARMED 71,665
 IRRIGATED 5,141

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	10.91	0.00	10.91	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	11.45	0.00	11.45	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.73	1.93	2.66	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	8.56	2.10	10.66	0.00	0.00	0.00	0.29
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	1.71	0.00	1.71	0.00	0.00	0.00	0.00
	33.36	4.03	37.39	0.00	0.00	0.00	0.29
TOTAL GROUND	33.36						
TOTAL SURFACE		4.03					
COUNTY TOTAL (1)		37.39					

(1) REUSE AMOUNTS ARE NOT INCLUDED IN TOTAL.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN MARION COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL (MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
BELLEVIEW - CITY OF	PUBLIC SUPPLY	3,000	0.589	0.000	FLORIDAN AQF.
GDU - SILVER SPRINGS SHORES	PUBLIC SUPPLY	9,000	1.387	0.000	FLORIDAN AQF.
MACO DEVELOPMENT CO.	PUBLIC SUPPLY	530	0.076	0.000	FLORIDAN AQF.
MARION UTILITIES	PUBLIC SUPPLY	2,912	0.323	0.000	FLORIDAN AQF.
McINTOSH - CITY OF	PUBLIC SUPPLY	483	0.107	0.000	FLORIDAN AQF.
OCALA - CITY OF	PUBLIC SUPPLY	45,100	7.668	0.000	FLORIDAN AQF.
OCALA EAST VILLAS	PUBLIC SUPPLY	580	0.129	0.000	FLORIDAN AQF.
OCALA OAKS UTILITIES	PUBLIC SUPPLY	1,800	0.221	0.000	FLORIDAN AQF.
SUNSHINE UTILITIES	PUBLIC SUPPLY	2,298	0.252	0.000	FLORIDAN AQF.
SOUTHERN STATES UTILITIES	PUBLIC SUPPLY	1,275	0.104	0.000	FLORIDAN AQF.
TRADEWINDS UTILITIES	PUBLIC SUPPLY	849	0.057	0.000	FLORIDAN AQF.
CERTIFIED GROCERS INC.	INDUSTRIAL		0.038	0.000	FLORIDAN AQF.
FLORIDA ROCK - MARION MINE	INDUSTRIAL		0.404	1.926	FLORIDAN AQF. & UNNAMED POND
GRANT CENTER HOSPITAL	INSTITUTIONAL		0.018	0.000	FLORIDAN AQF.
H.S. CAMP & SONS INC.	INDUSTRIAL		0.007	0.000	FLORIDAN AQF.
MARION CORRECTIONAL FAC.	INSTITUTIONAL		0.235	0.000	FLORIDAN AQF.
SILVER SPRINGS INC.	INSTITUTIONAL		0.032	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-11. WATER USE BY CROP FOR MARION COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	40	40	0.05	0.00	0.00	0.05
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	1,700	580	0.35	0.00	0.00	0.35
FRUIT CROPS						
BLUEBERRIES	60	50	0.09	0.00	0.00	0.09
CITRUS	300	250	0.30	0.00	0.00	0.30
GRAPES	70	60	0.11	0.00	0.00	0.11
PEACHES	5	5	0.01	0.00	0.00	0.01
PECANS	10	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	1,150	600	0.64	0.00	0.00	0.64
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	3,000	1,320	1.80	0.45	0.00	2.25
PEANUTS	2,000	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	300	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	1,500	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	20	15	0.07	0.00	0.00	0.07
FLOWERS & FOLIAGE	10	10	0.05	0.00	0.00	0.05
WOODY ORNAMENTALS	50	50	0.26	0.00	0.00	0.26
IMPROVED PASTURE	59,230	941	1.24	0.86	0.00	2.10
SOD	650	650	1.52	0.00	0.00	1.52
TURF GRASS (GOLF)	1,500	500	1.01	0.73	0.29	1.74
TURF GRASS (OTHER)	70	70	0.16	0.00	0.00	0.16
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.90	0.06	0.00	0.96
FISH FARMING	0	0	0.00	0.00	0.00	0.00
	71,665	5,141	8.56	2.10	0.29	10.66
SPRINKLER ACREAGE	3,745	5,141				
LOW PRESSURE ACREAGE	260					
FLOOD ACREAGE	1,136					

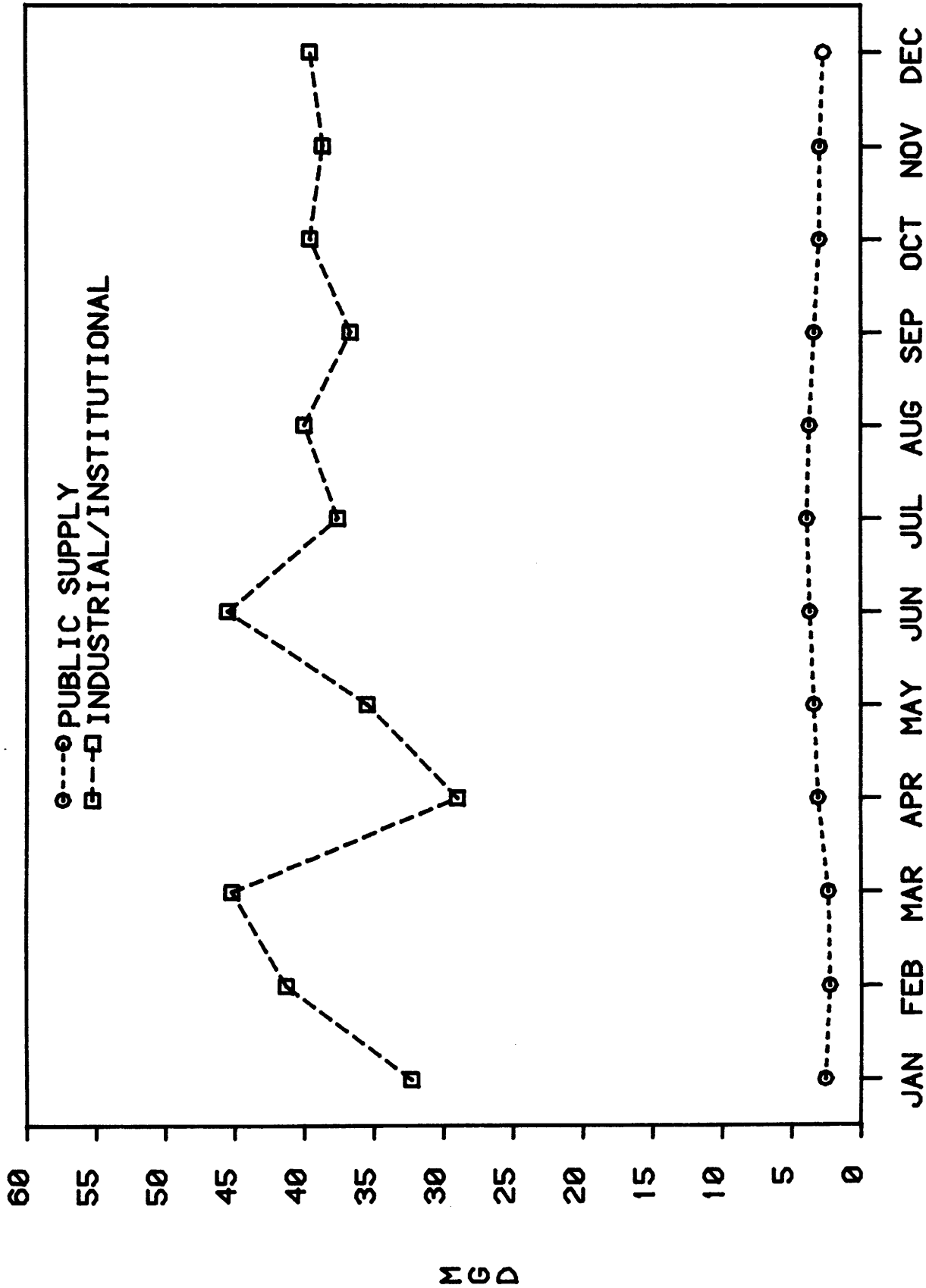


FIGURE A-12. MONTHLY FRESH WATER USE IN NASSAU COUNTY: 1986

NASSAU COUNTY DATA - 1986

TOTAL POPULATION 41,804
 TOTAL LAND AREA 671 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 41,804
 PUBLIC SUPPLY 18,413
 SELF-SUPPLIED 23,391
 PER CAPITA 169

LAND AREA (ACRES)
 TOTAL AREA 429,440 671 SQ. MILES
 FARMED 7,365
 IRRIGATED 680

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	3.12	0.00	3.12	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	3.95	0.00	3.95	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	38.42	0.00	38.42	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	2.17	0.97	3.14	0.00	0.00	0.00	0.68
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANÉOUS	0.01	0.00	0.01	0.00	0.00	0.00	0.00
	47.67	0.97	48.64	0.00	0.00	0.00	0.68
TOTAL GROUND		47.67					
TOTAL SURFACE		0.97					
COUNTY TOTAL (1)		48.64					

(1) REUSE AMOUNTS ARE NOT INCLUDED IN TOTAL.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN NASSAU COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
AMELIA ISLAND WATER WORKS	PUBLIC SUPPLY	4,560	0.513	0.000	FLORIDAN AQF.
CALLAHAN - TOWN OF	PUBLIC SUPPLY	1,140	0.191	0.000	FLORIDAN AQF.
EASTWOOD OAKS	PUBLIC SUPPLY	365	0.058	0.000	FLORIDAN AQF.
FLA. PUBLIC UT.- FERNANDINA BCH.	PUBLIC SUPPLY	10,200	2.165	0.000	FLORIDAN AQF.
HILLIARD - TOWN OF	PUBLIC SUPPLY	2,148	0.189	0.000	FLORIDAN AQF.
CONTAINER CORP. OF AMERICA	INDUSTRIAL		14.914	0.000	FLORIDAN AQF.
FLORIDA DOT - I95 WELCOME CEN.	INSTITUTIONAL		0.019	0.000	FLORIDAN AQF.
ITT RAYONIER INC.	INDUSTRIAL		23.458	1.734	FLORIDAN AQF. & AMELIA RIVER
NASSAU CORRECTIONAL FAC.	INSTITUTIONAL		0.021	0.000	FLORIDAN AQF.
TERMINAL PAPER CO.	INDUSTRIAL		0.006	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-12. WATER USE BY CROP FOR NASSAU COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	100	0	0.00	0.00	0.00	0.00
FRUIT CROPS						
BLUEBERRIES	30	15	0.02	0.00	0.00	0.02
CITRUS	0	0	0.00	0.00	0.00	0.00
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	500	50	0.06	0.00	0.00	0.06
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	1,000	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	37	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	20	20	0.10	0.00	0.00	0.10
WOODY ORNAMENTALS	3	0	0.00	0.00	0.00	0.00
IMPROVED PASTURE	5,000	0	0.00	0.00	0.00	0.00
SOD	0	0	0.00	0.00	0.00	0.00
TURF GRASS (GOLF)	645	565	1.12	0.17	0.68	1.29
TURF GRASS (OTHER)	30	30	0.07	0.00	0.00	0.07
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.80	0.80	0.00	1.60
FISH FARMING	0	0	0.00	0.00	0.00	0.00
	7,365	680	2.17	0.97	0.68	3.14
SPRINKLER ACREAGE	680	680				
LOW PRESSURE ACREAGE	0					
FLOOD ACREAGE	0					

THE COMMERCIAL/INDUSTRIAL PUMPAGE IN
OKEECHOBEE COUNTY WITHIN THE
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
FOR 1986 WAS TOO SMALL TO DEPICT.

OKEECHOBEE COUNTY DATA - 1986

TOTAL POPULATION 26,564
 TOTAL LAND AREA 780 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 420
 PUBLIC SUPPLY 0
 SELF-SUPPLIED 420
 PER CAPITA 143 (1)

LAND AREA (ACRES)
 TOTAL AREA 65,920 103 SQ. MILES
 FARMED 24,119
 IRRIGATED 6,901

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	0.06	0.00	0.06	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.06	0.00	0.06	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	8.17	0.25	8.42	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8.29	0.25	8.54	0.00	0.00	0.00	0.00
TOTAL GROUND	8.29						
TOTAL SURFACE		0.25					
COUNTY TOTAL		8.54					

(1) USED THE 1985 TOTAL COUNTY'S PER CAPITA (MARELLA,1988).

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN OKEECHOBEE COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
FLORIDA DOT - FT.DRUM SER.PLAZA	INSTITUTIONAL		0.061	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-13. WATER USE BY CROP FOR OKEECHOBEE COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	0	0	0.00	0.00	0.00	0.00
FRUIT CROPS						
BLUEBERRIES	0	0	0.00	0.00	0.00	0.00
CITRUS	4,119	4,119	5.00	0.00	0.00	5.00
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	0	0	0.00	0.00	0.00	0.00
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	0	0	0.00	0.00	0.00	0.00
WOODY ORNAMENTALS	0	0	0.00	0.00	0.00	0.00
IMPROVED PASTURE	20,000	2,782	2.49	0.00	0.00	2.49
SOD	0	0	0.00	0.00	0.00	0.00
TURF GRASS (GOLF)	0	0	0.00	0.00	0.00	0.00
TURF GRASS (OTHER)	0	0	0.00	0.00	0.00	0.00
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.50	0.25	0.00	0.75
FISH FARMING	0	0	0.18	0.00	0.00	0.18
TOTAL						
	24,119	6,901	8.17	0.25	0.00	8.42
ACREAGE SUMMARY						
SPRINKLER ACREAGE	0	6,901				
LOW PRESSURE ACREAGE	4,119					
FLOOD ACREAGE	2,782					

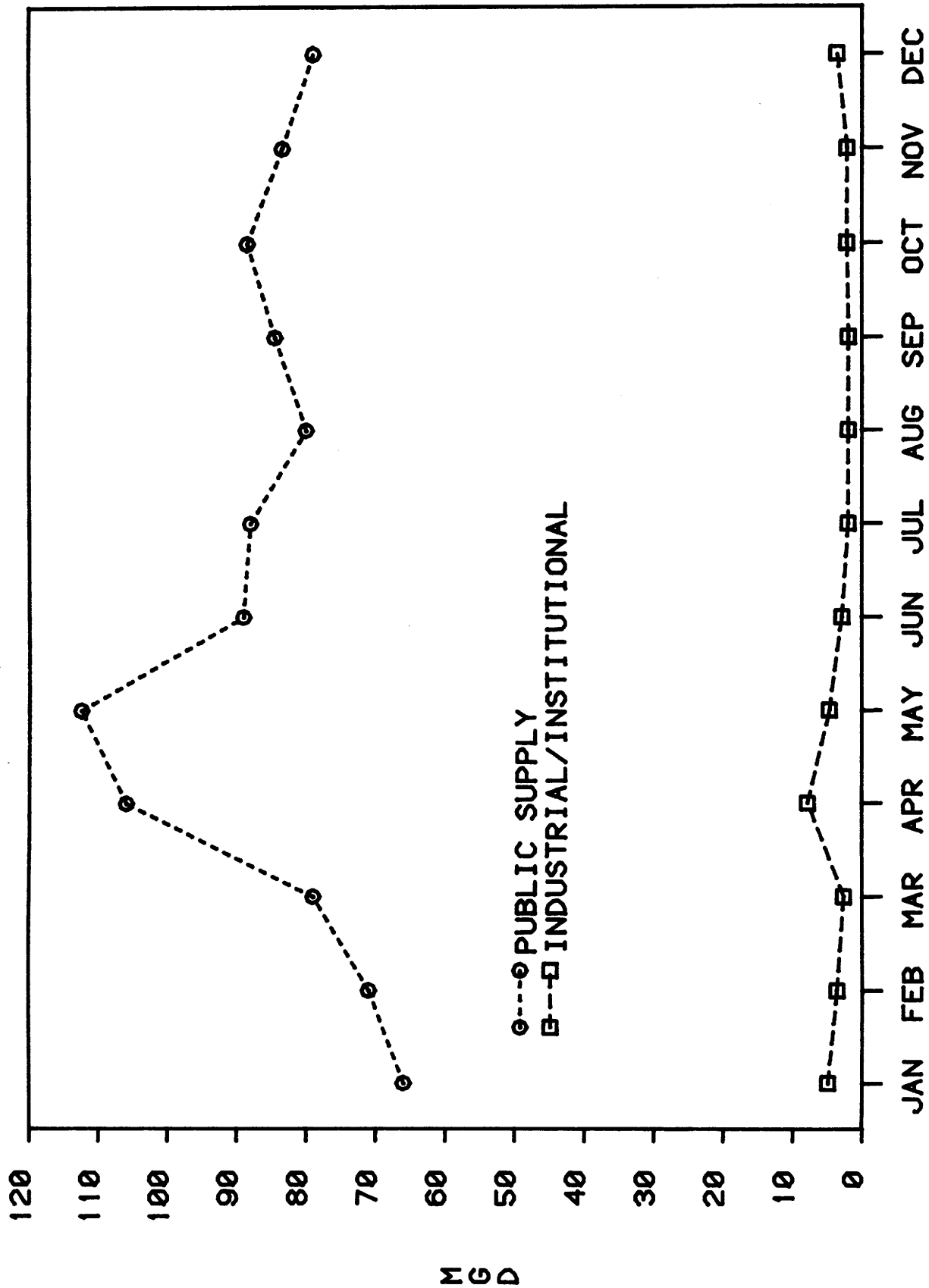


FIGURE A-13. MONTHLY FRESH WATER USE IN ORANGE COUNTY: 1986

ORANGE COUNTY DATA - 1986

TOTAL POPULATION 577,856
 TOTAL LAND AREA 1,003 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 474,420
 PUBLIC SUPPLY 458,061
 SELF-SUPPLIED 16,359
 PER CAPITA 195

LAND AREA (ACRES)
 TOTAL AREA 476,160 744 SQ. MILES
 FARMED 78,918
 IRRIGATED 59,002

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY (1)	108.07	0.00	108.07	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	3.19	0.00	3.19	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	3.42	0.00	3.42	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	32.92	50.98	83.90	0.00	0.00	0.00	0.59
POWER GENERATION S-S	0.17	0.00	0.17	0.00	0.00	0.00	0.00 (2)
MISCELLANEOUS	0.84	0.00	0.84	0.00	0.00	0.00	0.00
	148.61	50.98	199.59	0.00	0.00	0.00	0.59
TOTAL GROUND	148.61						
TOTAL SURFACE		50.98					
COUNTY TOTAL (3)		199.59					

- (1) INCLUDES 22.47 Mgal/d OF WATER WITHDRAWN IN ORANGE COUNTY FOR PUBLIC SUPPLY USE IN BREVARD COUNTY.
- (2) NO DATA WAS AVAILABLE FOR THE AMMOUNT OF RECLAIMED WATER USED FOR COOLING AT THE STANTON POWER PLANT IN 1986.
- (3) REUSE AMOUNTS ARE NOT INCLUDED IN TOTAL.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN ORANGE COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
APOPKA - CITY OF	PUBLIC SUPPLY	19,950	3.309	0.000	FLORIDAN AQF.
EATONVILLE - TOWN OF	PUBLIC SUPPLY	2,700	0.615	0.000	FLORIDAN AQF.
ECON UTILITIES - WEDGEFIELD	PUBLIC SUPPLY	576	0.107	0.000	FLORIDAN AQF.
MAITLAND - CITY OF	PUBLIC SUPPLY	9,412	2.842	0.000	FLORIDAN AQF.
OAKLAND - TOWN OF	PUBLIC SUPPLY	670	0.094	0.000	FLORIDAN AQF.
OCOEE - CITY OF	PUBLIC SUPPLY	11,130	2.036	0.000	FLORIDAN AQF.
ORANGE COUNTY PUBLIC UTILITIES	PUBLIC SUPPLY	81,341	17.057	0.000	FLORIDAN AQF.
SJRWMD PORTION OF OCPU		65,073	13.260	0.000	
ORLANDO UTILITIES COMMISSION	PUBLIC SUPPLY	343,359	69.516	0.000	FLORIDAN AQF.
SJRWMD PORTION OF OUC		256,519	49.487	0.000	
ROCK SPRINGS MHP	PUBLIC SUPPLY	1,240	0.152	0.000	FLORIDAN AQF.
SHADOW HILLS MHP	PUBLIC SUPPLY	1,280	0.142	0.000	FLORIDAN AQF.
SOUTHERN STATES UTILITIES	PUBLIC SUPPLY	5,010	0.680	0.000	FLORIDAN AQF.
STARLIGHT RANCH MHP	PUBLIC SUPPLY	1,560	0.176	0.000	FLORIDAN AQF.
TANGERINE - TOWN OF	PUBLIC SUPPLY	400	0.112	0.000	FLORIDAN AQF.
UTILITIES INC. OF FLORIDA	PUBLIC SUPPLY	955	0.092	0.000	FLORIDAN AQF.
WINTER GARDEN - CITY OF	PUBLIC SUPPLY	10,626	1.537	0.000	FLORIDAN AQF.
WINTER PARK - CITY OF	PUBLIC SUPPLY	68,500	10.239	0.000	FLORIDAN AQF.
ZELLWOOD STATION UTILITIES	PUBLIC SUPPLY	1,560	0.577	0.000	FLORIDAN AQF.
ZELLWOOD WATER ASSOC.	PUBLIC SUPPLY	900	0.142	0.000	FLORIDAN AQF.
COCA COLA - PLYMOUTH PLANT	INDUSTRIAL		0.148	0.000	FLORIDAN AQF.
LUST & LONG PRECOOLER CO.	INDUSTRIAL		0.085	0.000	FLORIDAN AQF.
OUC - STANTON PLANT	POWER GEN.		0.169	0.000	FLORIDAN AQF.
RALSTON PURINA - ZELLWOOD FARMS	INDUSTRIAL		0.177	0.000	FLORIDAN AQF.
SOUTHERN FRUIT DISTRIBUTORS	INDUSTRIAL		0.122	0.000	FLORIDAN AQF.
SUN RESORT INC.	INSTITUTIONAL		0.080	0.000	FLORIDAN AQF.
UNIVERSITY OF CENTRAL FLORIDA	INSTITUTIONAL		0.724	0.000	FLORIDAN AQF.
WINTER GARDEN CITRUS PLANT	INDUSTRIAL		2.084	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-14. WATER USE BY CROP FOR ORANGE COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	TOTAL
VEGETABLE CROPS						
CABBAGE	1,400	1,400	1.14	0.00	0.00	1.14
CARROTS	13,500	13,500	1.23	11.08	0.00	12.31
CUCUMBERS	1,610	1,610	1.45	0.00	0.00	1.45
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	75	75	0.09	0.00	0.00	0.09
SWEET CORN	13,600	13,600	1.54	13.87	0.00	15.41
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	14,060	14,060	2.58	23.22	0.00	25.80
FRUIT CROPS						
BLUEBERRIES	50	50	0.06	0.00	0.00	0.06
CITRUS	12,000	11,000	14.04	1.63	0.59	15.67
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	150	150	0.16	0.00	0.00	0.16
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	200	200	0.23	0.00	0.00	0.23
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	200	200	0.21	0.00	0.00	0.21
SOYBEANS	200	200	0.22	0.00	0.00	0.22
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	40	40	0.19	0.00	0.00	0.19
FLOWERS & FOLIAGE	581	581	2.25	0.56	0.00	2.81
WOODY ORNAMENTALS	576	576	2.79	0.00	0.00	2.79
IMPROVED PASTURE	18,562	240	0.23	0.00	0.00	0.23
SOD	200	200	0.57	0.00	0.00	0.57
TURF GRASS (GOLF)	1,533	939	2.74	0.48	0.00	3.22
TURF GRASS (OTHER)	381	381	0.71	0.14	0.00	0.85
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.37	0.00	0.00	0.37
FISH FARMING	0	0	0.12	0.00	0.00	0.12
=====						
	78,918	59,002	32.92	50.98	0.59	83.90
=====						
SPRINKLER ACREAGE	9,057	59,002				
LOW PRESSURE ACREAGE	5,500					
FLOOD ACREAGE	44,445					

**NO PUBLIC SUPPLY OR COMMERCIAL/INDUSTRIAL
PUMPAGE IN OSCEOLA COUNTY WITHIN THE
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
WAS INVENTORIED FOR 1986.**

OSCEOLA COUNTY DATA - 1986

TOTAL POPULATION 82,554
 TOTAL LAND AREA 1,467 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 420
 PUBLIC SUPPLY 0
 SELF-SUPPLIED 420
 PER CAPITA 140 (1)

LAND AREA (ACRES)
 TOTAL AREA 346,880 542 SQ. MILES
 FARMED 126,950
 IRRIGATED 12,330

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	0.06	0.00	0.06	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	6.39	8.67	15.06	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6.45	8.67	15.12	0.00	0.00	0.00	0.00
TOTAL GROUND		6.45					
TOTAL SURFACE		8.67					
COUNTY TOTAL		15.12					

(1) USED THE 1985 TOTAL COUNTY'S PER CAPITA (MARELLA, 1988).

**NO INDIVIDUAL WATER USERS WERE INVENTORIED
WITHIN THE ST. JOHNS RIVER WATER MANAGEMENT
DISTRICT PORTION OF OSCEOLA COUNTY FOR 1986.**

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-15. WATER USE BY CROP FOR OSCEOLA COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	0	0	0.00	0.00	0.00	0.00
FRUIT CROPS						
BLUEBERRIES	0	0	0.00	0.00	0.00	0.00
CITRUS	1,150	1,150	2.31	0.00	0.00	2.31
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	0	0	0.00	0.00	0.00	0.00
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	0	0	0.00	0.00	0.00	0.00
WOODY ORNAMENTALS	0	0	0.00	0.00	0.00	0.00
IMPROVED PASTURE	125,800	11,180	2.29	8.61	0.00	10.90
SOD	0	0	0.00	0.00	0.00	0.00
TURF GRASS (GOLF)	0	0	0.00	0.00	0.00	0.00
TURF GRASS (OTHER)	0	0	0.00	0.00	0.00	0.00
MISC. AGRICULTURAL						
LIVESTOCK	0	0	1.79	0.06	0.00	1.85
FISH FARMING	0	0	0.00	0.00	0.00	0.00
TOTAL						
	126,950	12,330	6.39	8.67	0.00	15.06
SPRINKLER ACREAGE						
	150	12,330				
LOW PRESSURE ACREAGE						
	230					
FLOOD ACREAGE						
	11,950					

THE PUBLIC SUPPLY AND COMMERCIAL/INDUSTRIAL
PUMPAGE IN POLK COUNTY WITHIN THE
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
FOR 1986 WAS TOO SMALL TO DEPICT.

POLK COUNTY DATA - 1986

TOTAL POPULATION 377,583
 TOTAL LAND AREA 2,048 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 5,475
 PUBLIC SUPPLY 850 (1)
 SELF-SUPPLIED 1,475
 PER CAPITA 200 (2)

LAND AREA (ACRES)
 TOTAL AREA 40,320 63 SQ. MILES
 FARMED 15,985
 IRRIGATED 7,335

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	0.10	0.00	0.10	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	0.30	0.00	0.30	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.02	0.00	0.02	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	9.59	0.99	10.58	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10.01	0.99	11.00	0.00	0.00	0.00	0.00
TOTAL GROUND		10.01					
TOTAL SURFACE		0.99					
COUNTY TOTAL		11.00					

(1) DOES NOT INCLUDE 3,150 POPULATION SERVED BY A PUBLIC SUPPLY IN THE SWFWMD WHO LIVE IN THE SJRWMD.

(2) USED THE 1985 TOTAL COUNTY'S PER CAPITA (STIEGLITZ, 1986).

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN POLK COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
OAK HARBOR S/D	PUBLIC SUPPLY	450	0.041	0.000	FLORIDAN AQF.
POLK COUNTY UTILITIES	PUBLIC SUPPLY	400	0.061	0.000	FLORIDAN AQF.
B. C. COOK & SONS CITRUS PLANT	INDUSTRIAL		0.022	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-16. WATER USE BY CROP FOR PLOK COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	0	0	0.00	0.00	0.00	0.00
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	0	0	0.00	0.00	0.00	0.00
FRUIT CROPS						
BLUEBERRIES	0	0	0.00	0.00	0.00	0.00
CITRUS	10,430	6,680	8.33	0.92	0.00	9.25
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	1,000	500	0.57	0.00	0.00	0.57
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	0	0	0.00	0.00	0.00	0.00
FLOWERS & FOLIAGE	5	5	0.02	0.00	0.00	0.02
WOODY ORNAMENTALS	50	50	0.37	0.00	0.00	0.37
IMPROVED PASTURE	4,500	100	0.30	0.07	0.00	0.37
SOD	0	0	0.00	0.00	0.00	0.00
TURF GRASS (GOLF)	0	0	0.00	0.00	0.00	0.00
TURF GRASS (OTHER)	0	0	0.00	0.00	0.00	0.00
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.00	0.00	0.00	0.00
FISH FARMING	0	0	0.00	0.00	0.00	0.00
TOTAL						
	15,985	7,335	9.59	0.99	0.00	10.58
SPRINKLER ACREAGE						
SPRINKLER ACREAGE	6,540	7,335				
LOW PRESSURE ACREAGE						
LOW PRESSURE ACREAGE	695					
FLOOD ACREAGE						
FLOOD ACREAGE	100					

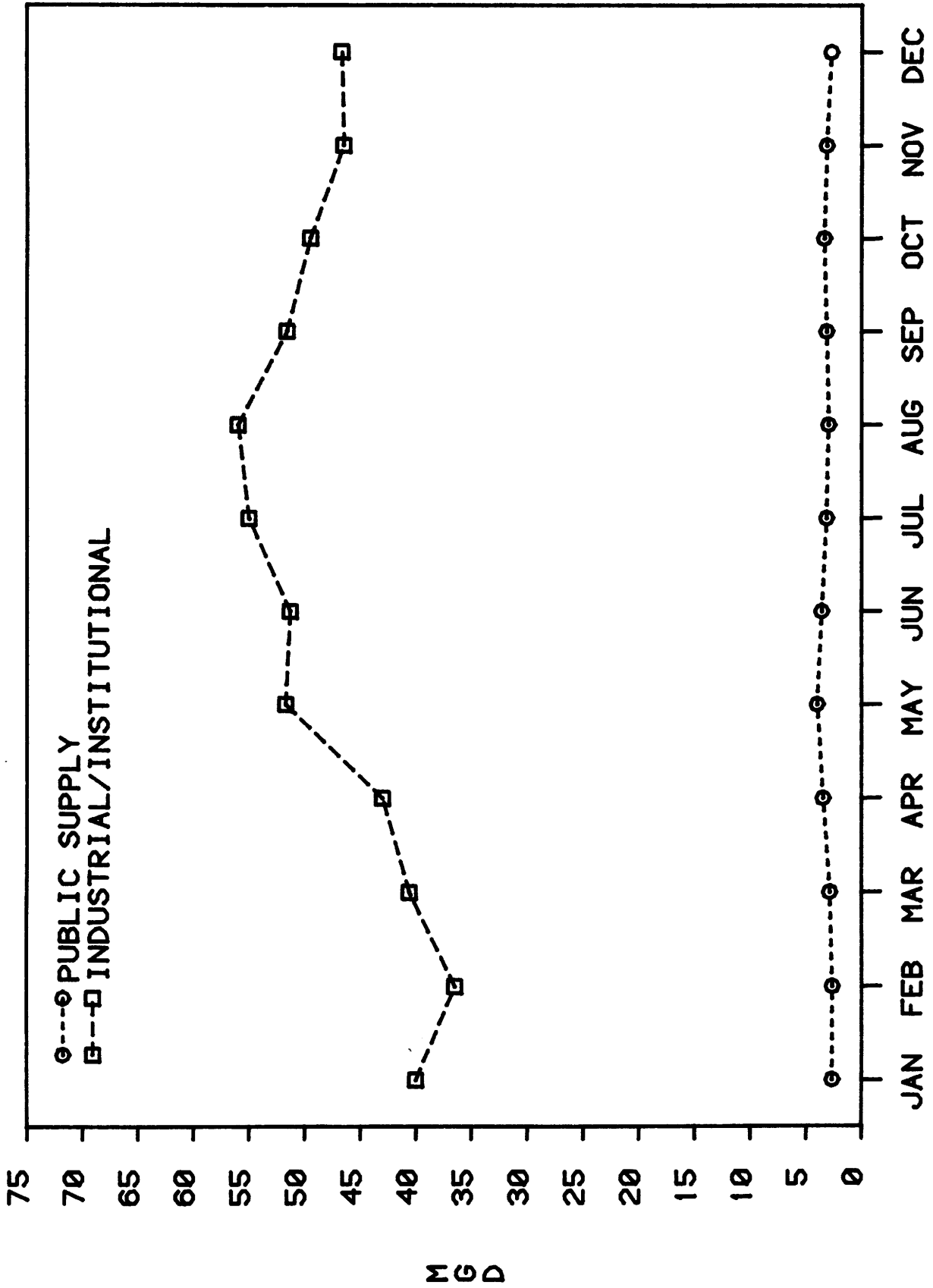


FIGURE A-14. MONTHLY FRESH WATER USE IN PUTNAM COUNTY: 1986

PUTNAM COUNTY DATA - 1986

TOTAL POPULATION 58,480
 TOTAL LAND AREA 879 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 58,400
 PUBLIC SUPPLY 19,354
 SELF-SUPPLIED 39,046
 PER CAPITA 165

LAND AREA (ACRES)
 TOTAL AREA 652,460 (1) 879 SQ. MILES
 FARMED 50,705
 IRRIGATED 8,890

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	3.18	0.00	3.18	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	6.44	0.00	6.44	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	37.37	10.20	47.57	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	18.71	1.52	20.23	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.53	12.09	12.62	0.00	0.00	0.00	0.00
MISCELLANEOUS	2.85	0.00	2.85	0.00	0.00	0.00	0.00
	69.08	23.81	92.89	0.00	0.00	0.00	0.00
TOTAL GROUND		69.08					
TOTAL SURFACE		23.81					
COUNTY TOTAL		92.89					

(1) APPROXIMATELY 100 ACRES OF PUTNAM COUNTY IS LOCATED IN THE SRWMD.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN PUTNAM COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL (MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
CRESCENT - CITY OF	PUBLIC SUPPLY	2,035	0.299	0.000	FLORIDAN AQF.
INTERLACHEN - TOWN OF	PUBLIC SUPPLY	800	0.117	0.000	FLORIDAN AQF.
MELROSE WATER ASSOC.	PUBLIC SUPPLY	689	0.058	0.000	FLORIDAN AQF.
PALATKA - CITY OF	PUBLIC SUPPLY	13,554	2.499	0.000	FLORIDAN AQF.
SOUTHERN STATES UTILITIES	PUBLIC SUPPLY	2,276	0.210	0.000	FLORIDAN AQF.
FELDSPAR CORP. - EDGAR MINE	INDUSTRIAL		5.498	1.899	FLORIDAN AQF. & UNNAMED POND
FLORIDA POWER & LIGHT - PUTNAM	POWER GEN.		0.085	1.891	FLORIDAN AQF. & ST. JOHNS RIVER
FLORIDA ROCK - KEUKA MINE	INDUSTRIAL		0.893	4.301	FLORIDAN AQF.
GEORGIA PACIFIC - PALATKA PLANT	INDUSTRIAL		30.743	4.000	FLORIDAN AQF. & SIMMS/ETONIA CREEK
GEORGIA PACIFIC - HAWTHORNE PLT.	INDUSTRIAL		0.191	0.000	FLORIDAN AQF.
PUTNAM CORRECTIONAL FAC. (FDOC)	INSTITUTIONAL		0.047	0.000	FLORIDAN AQF.
SEMINOLE ELECTRIC CORP.	POWER GEN.		0.444	10.201	FLORIDAN AQF. & ST. JOHNS RIVER

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-17. WATER USE BY CROP FOR PUTNAM COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	TOTAL
VEGETABLE CROPS						
CABBAGE	900	900	1.17	0.00	0.00	1.17
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	0	0	0.00	0.00	0.00	0.00
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	4,500	4,500	6.56	0.00	0.00	6.56
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	200	200	0.45	0.00	0.00	0.45
FRUIT CROPS						
BLUEBERRIES	100	75	0.06	0.00	0.00	0.06
CITRUS	95	95	0.12	0.00	0.00	0.12
GRAPES	10	10	0.02	0.00	0.00	0.02
PEACHES	70	70	0.18	0.00	0.00	0.18
PECANS	100	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	200	200	0.21	0.00	0.00	0.21
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	3,000	500	0.78	0.20	0.00	0.98
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	400	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	2,500	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	900	900	3.48	0.87	0.00	4.35
FLOWERS & FOLIAGE	220	220	0.85	0.21	0.00	1.06
WOODY ORNAMENTALS	29	29	0.14	0.00	0.00	0.14
IMPROVED PASTURE	37,000	830	0.72	0.08	0.00	0.80
SOD	260	260	0.53	0.00	0.00	0.53
TURF GRASS (GOLF)	196	76	0.28	0.00	0.00	0.28
TURF GRASS (OTHER)	25	25	0.05	0.00	0.00	0.05
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.25	0.16	0.00	0.41
FISH FARMING	0	0	2.86	0.00	0.00	2.86
TOTALS						
	50,705	8,890	18.71	1.52	0.00	20.23
ADDITIONAL DATA						
SPRINKLER ACREAGE	1,678	8,890				
LOW PRESSURE ACREAGE	113					
FLOOD ACREAGE	7,099					

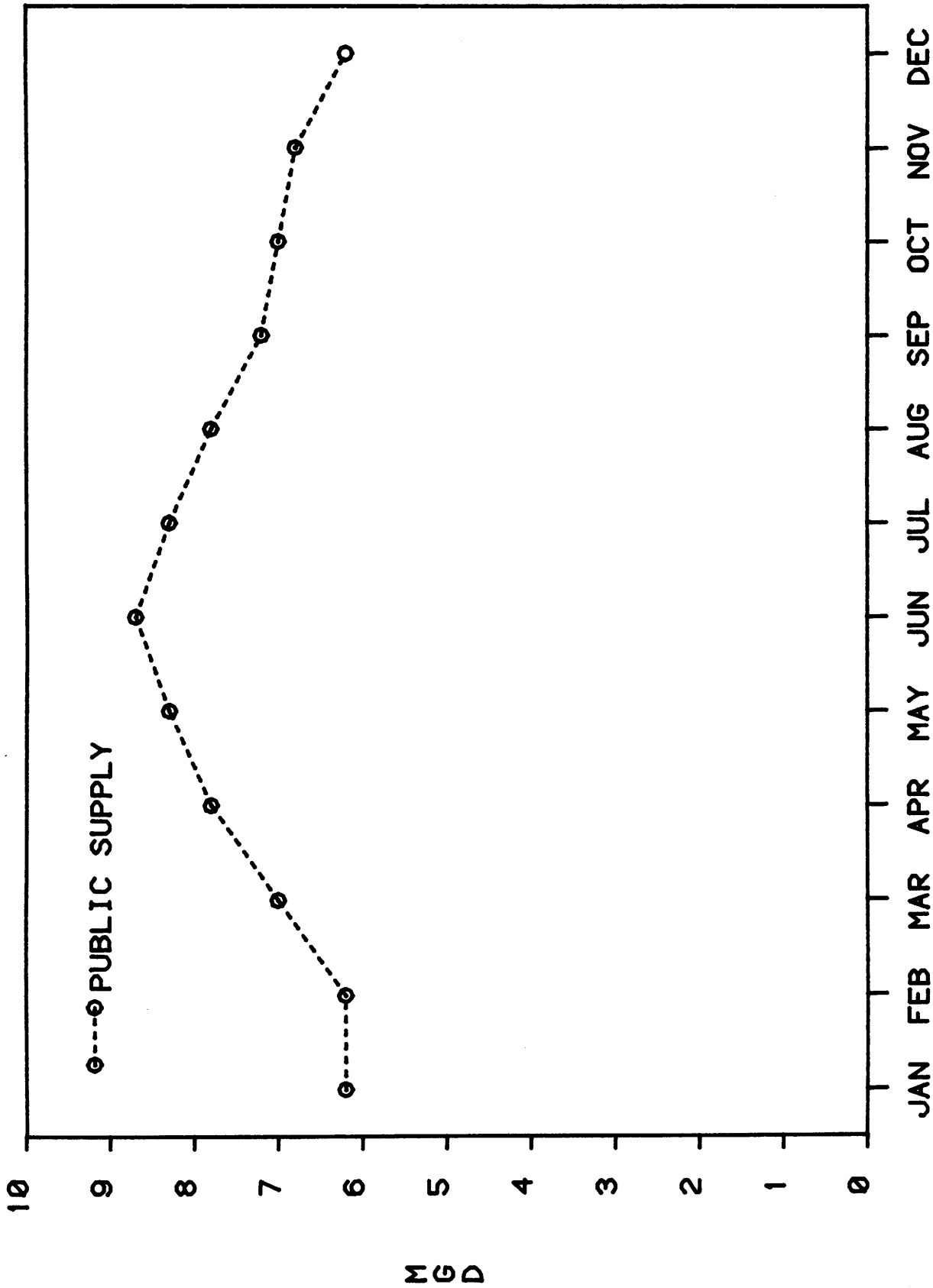


FIGURE A-15. MONTHLY FRESH WATER USE IN ST. JOHNS COUNTY: 1986

ST. JOHNS COUNTY DATA - 1986

TOTAL POPULATION 73,093
 TOTAL LAND AREA 660 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 73,093
 PUBLIC SUPPLY 56,574
 SELF-SUPPLIED 16,519
 PER CAPITA 129

LAND AREA (ACRES)
 TOTAL AREA 422,400 660 SQ. MILES
 FARMED 31,972
 IRRIGATED 26,391

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	7.28	0.00	7.28	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	2.13	0.00	2.13	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.07	0.00	0.07	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	40.05	1.29	41.34	0.00	0.00	0.00	0.42
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.97	0.00	0.97	0.00	0.00	0.00	0.00
	50.50	1.29	51.79	0.00	0.00	0.00	0.42
TOTAL GROUND	50.50						
TOTAL SURFACE		1.29					
COUNTY TOTAL (1)		51.79					

(1) REUSE AMOUNTS ARE NOT INCLUDED IN TOTAL.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN ST. JOHNS COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
ANASTAIA/MAINLAND WATER SYSTEM	PUBLIC SUPPLY	15,930	1.949	0.000	FLORIDAN & SURFICIAL AQF.
FOUNTAIN CONDOMINIUMS	PUBLIC SUPPLY	392	0.041	0.000	FLORIDAN AQF.
FRUIT COVE OAKS S/D	PUBLIC SUPPLY	450	0.062	0.000	FLORIDAN AQF.
HASTINGS - CITY OF	PUBLIC SUPPLY	595	0.046	0.000	FLORIDAN & SURFICIAL AQF.
INTERCOASTAL UTILITIES	PUBLIC SUPPLY	2,957	0.305	0.000	FLORIDAN AQF.
NORTH BEACH WATER SYSTEM	PUBLIC SUPPLY	799	0.141	0.000	FLORIDAN AQF.
PALM VALLEY WATER SYSTEM	PUBLIC SUPPLY	400	0.015	0.000	FLORIDAN AQF.
PONCE DeLEON UT.- GOODWIN BEACH	PUBLIC SUPPLY	200	0.009	0.000	FLORIDAN AQF.
PONTE VEDRA UTILITIES	PUBLIC SUPPLY	5,433	1.174	0.000	FLORIDAN AQF.
S. PONTE VEDRA BEACH UTILITIES	PUBLIC SUPPLY	681	0.073	0.000	FLORIDAN AQF.
ST. AUGUSTINE - CITY OF	PUBLIC SUPPLY	15,562	2.026	0.000	FLORIDAN & SURFICIAL AQF.
ST. AUGUSTINE SHORES UTILITIES	PUBLIC SUPPLY	5,240	0.456	0.000	SURFICIAL AQF.
ST. JOHNS NORTH UTILITY	PUBLIC SUPPLY	304	0.025	0.000	FLORIDAN AQF.
ST. JOHNS SERVICE CO.	PUBLIC SUPPLY	7,231	0.884	0.000	FLORIDAN AQF.
WESLEY MANOR WATER SYSTEM	PUBLIC SUPPLY	400	0.077	0.000	FLORIDAN AQF.
BORDON/WISE POTATO CHIP PLANT	INDUSTRIAL		0.058	0.000	FLORIDAN AQF.
FLORIDA DOT - I95 REST FAC.	INSTITUTIONAL		0.014	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-18. WATER USE BY CROP FOR ST. JOHNS COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	2,000	2,000	2.60	0.00	0.00	2.60
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	50	50	0.06	0.00	0.00	0.06
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	20,000	20,000	29.31	0.00	0.00	29.31
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	500	500	0.95	0.00	0.00	0.95
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	500	500	0.92	0.00	0.00	0.92
FRUIT CROPS						
BLUEBERRIES	5	5	0.01	0.00	0.00	0.01
CITRUS	0	0	0.00	0.00	0.00	0.00
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	2,000	2,000	3.09	0.00	0.00	3.09
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	5	5	0.02	0.00	0.00	0.02
FLOWERS & FOLIAGE	25	25	0.13	0.00	0.00	0.13
WOODY ORNAMENTALS	75	75	0.39	0.00	0.00	0.39
IMPROVED PASTURE	5,500	100	0.10	0.00	0.00	0.10
SOD	100	100	0.20	0.00	0.00	0.20
TURF GRASS (GOLF)	1,192	1,011	2.12	1.19	0.42	3.31
TURF GRASS (OTHER)	20	20	0.05	0.00	0.00	0.05
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.10	0.10	0.00	0.20
FISH FARMING	0	0	0.00	0.00	0.00	0.00
TOTALS						
	31,972	26,391	40.05	1.29	0.42	41.34
SPRINKLER ACREAGE						
SPRINKLER ACREAGE	1,226	26,391				
LOW PRESSURE ACREAGE						
LOW PRESSURE ACREAGE	5					
FLOOD ACREAGE						
FLOOD ACREAGE	25,160					

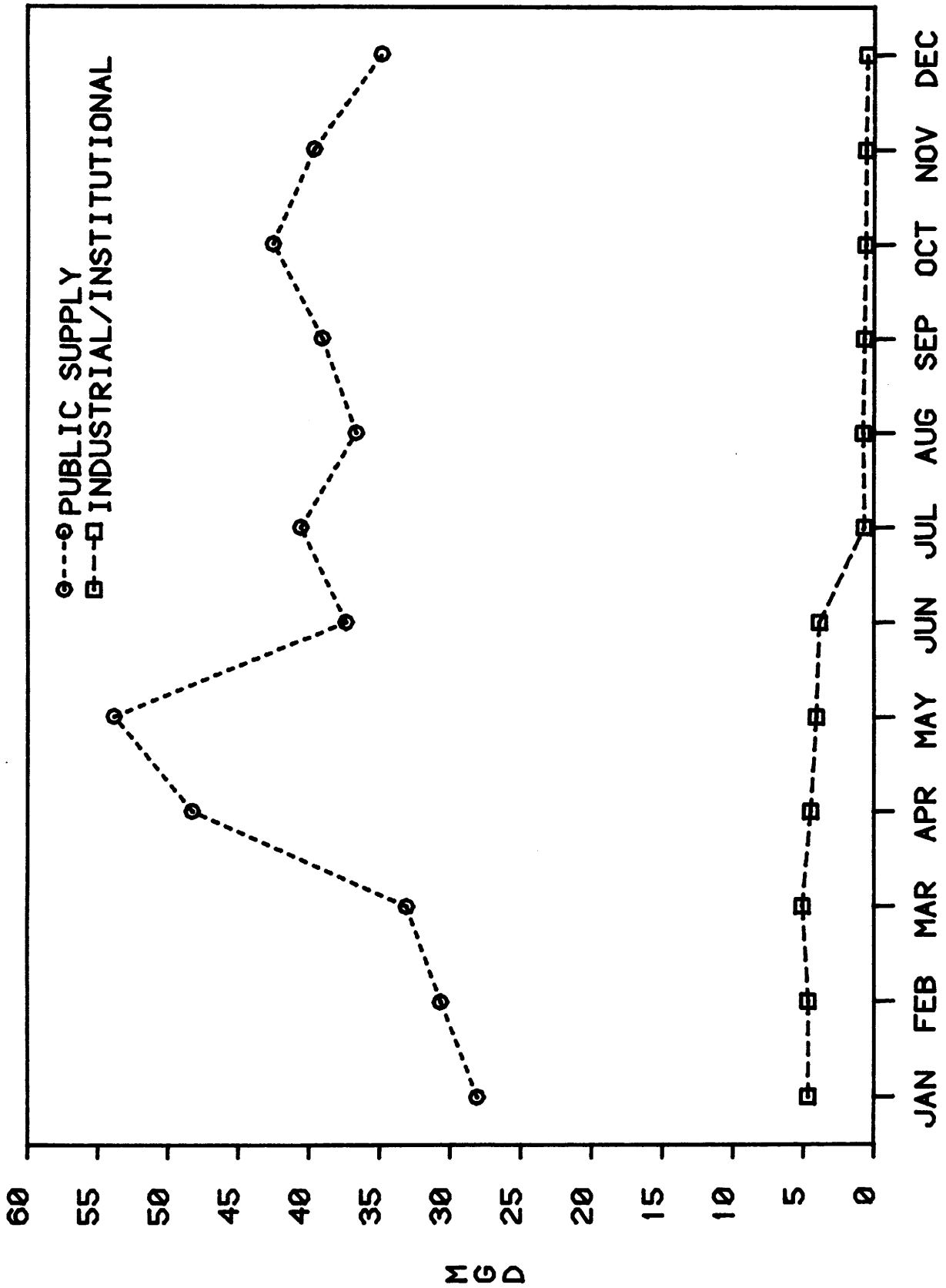


FIGURE A-16. MONTHLY FRESH WATER USE IN SEMINOLE COUNTY: 1986

SEMINOLE COUNTY DATA - 1986

TOTAL POPULATION 241,293
 TOTAL LAND AREA 352 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 241,293
 PUBLIC SUPPLY 220,132
 SELF-SUPPLIED 21,161
 PER CAPITA 176

LAND AREA (ACRES)
 TOTAL AREA 225,280 352 SQ. MILES
 FARMED 19,336
 IRRIGATED 10,542

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY	38.68	0.00	38.68	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	3.72	0.00	3.72	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	2.54	0.00	2.54	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	25.14	2.31	27.45	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISCELLANEOUS	0.12	0.00	0.12	0.00	0.00	0.00	0.00
	70.20	2.31	72.51	0.00	0.00	0.00	0.00
TOTAL GROUND		70.20					
TOTAL SURFACE		2.31					
COUNTY TOTAL		72.51					

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

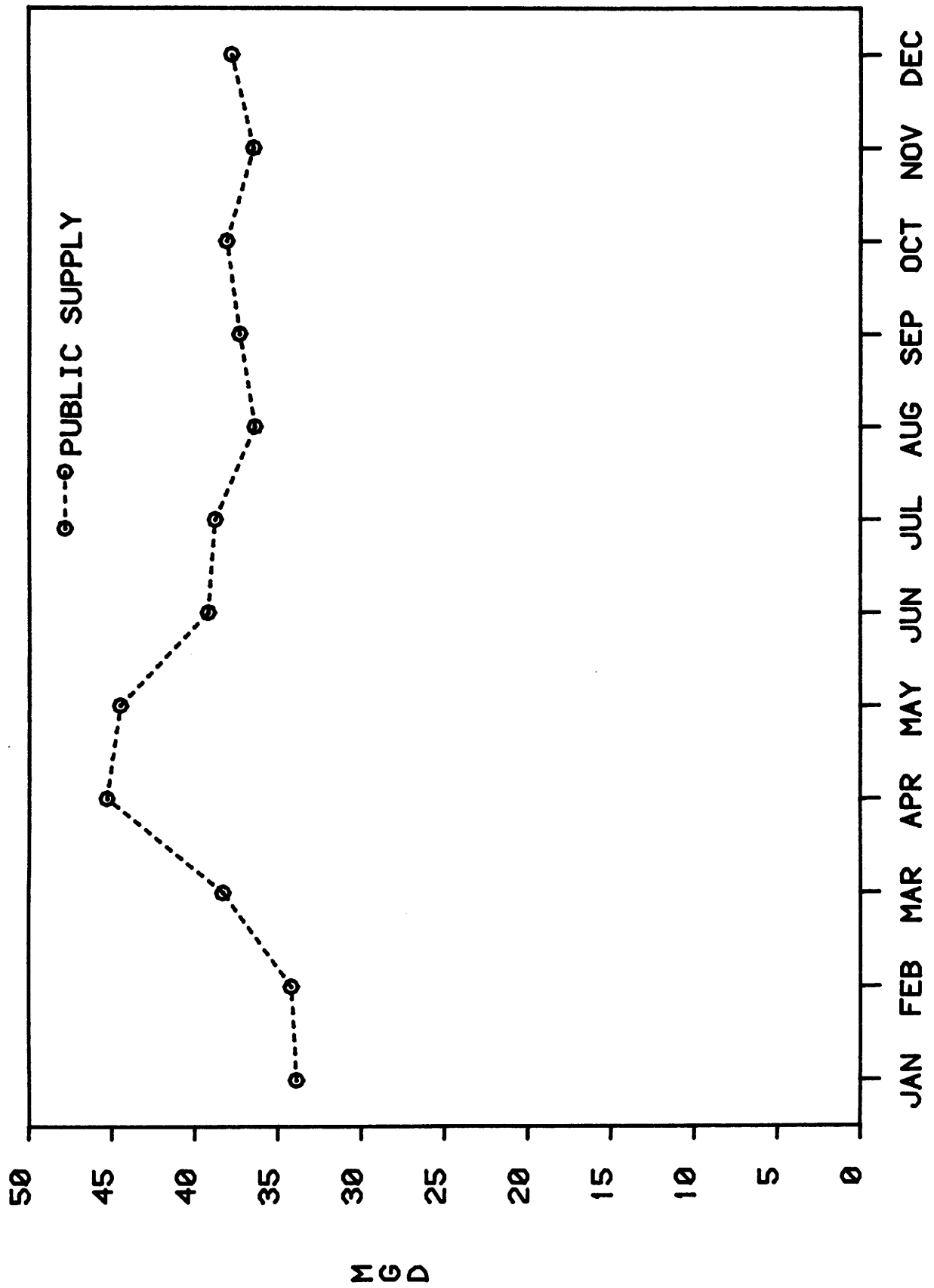
1986 INDIVIDUAL WATER USERS IN SEMINOLE COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL (MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
ALAMONTE SPRINGS - CITY OF	PUBLIC SUPPLY	29,535	7.405	0.000	FLORIDAN AQF.
CASSELBERRY - CITY OF	PUBLIC SUPPLY	34,100	4.754	0.000	FLORIDAN AQF.
CENTRAL FIVE UTILITIES INC.	PUBLIC SUPPLY	5,440	1.036	0.000	FLORIDAN AQF.
INDIAN CREEK - SEMINOLE PINES	PUBLIC SUPPLY	193	0.036	0.000	FLORIDAN AQF.
LAKE HARNEY WATER ASSOC.	PUBLIC SUPPLY	440	0.036	0.000	FLORIDAN AQF.
LONGWOOD - CITY OF	PUBLIC SUPPLY	12,932	1.805	0.000	FLORIDAN AQF.
LUTHERN HAVEN WATER SYSTEM	PUBLIC SUPPLY	435	0.042	0.000	FLORIDAN AQF.
MULLET LAKE WATER ASSOC.	PUBLIC SUPPLY	550	0.034	0.000	FLORIDAN AQF.
OVIEDO - CITY OF	PUBLIC SUPPLY	5,500	0.903	0.000	FLORIDAN AQF.
PALM VENTURES MHP	PUBLIC SUPPLY	687	0.141	0.000	FLORIDAN AQF.
SANFORD - CITY OF	PUBLIC SUPPLY	33,500	5.204	0.000	FLORIDAN AQF.
SANLANDO UTILITIES	PUBLIC SUPPLY	30,761	7.783	0.000	FLORIDAN AQF.
SEMINOLE COUNTY WATER & SEWER	PUBLIC SUPPLY	28,673	4.716	0.000	FLORIDAN AQF.
SEMINOLE UTILITIES INC.	PUBLIC SUPPLY	7,725	1.569	0.000	FLORIDAN AQF.
SOUTHERN STATES UTILITIES	PUBLIC SUPPLY	7,550	1.210	0.000	FLORIDAN AQF.
UTILITIES INC. OF FLORIDA	PUBLIC SUPPLY	8,829	0.896	0.000	FLORIDAN AQF.
WINTER SPRINGS - CITY OF	PUBLIC SUPPLY	13,282	1.106	0.000	FLORIDAN AQF.
COCA COLA - FOREST CITY PLANT	INDUSTRIAL		1.871	0.000	FLORIDAN AQF.
DEEP SOUTH PROCESSING PLANT	INDUSTRIAL		0.514	0.000	FLORIDAN AQF.
I-4 INDUSTRIAL PARK	INDUSTRIAL		0.090	0.000	FLORIDAN AQF.
IRON BRIDGE FAC.	INSTITUTIONAL		0.008	0.000	FLORIDAN AQF.
LAKE SYLVAN PARK - SCW&S	INSTITUTIONAL		0.033	0.000	FLORIDAN AQF.
UNITED TECHNOLOGY INC (STROM/CAR)	INDUSTRIAL		0.028	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-19. WATER USE BY CROP FOR SEMINOLE COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			TOTAL
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	
VEGETABLE CROPS						
CABBAGE	1,200	1,200	0.81	0.00	0.00	0.81
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	1,200	1,200	0.81	0.00	0.00	0.81
PEPPERS	120	120	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	40	40	0.05	0.00	0.00	0.05
WATERCRESS	150	150	7.81	0.00	0.00	7.81
MISC. VEGETABLES	960	873	0.87	0.00	0.00	0.87
FRUIT CROPS						
BLUEBERRIES	5	5	0.01	0.00	0.00	0.01
CITRUS	4,500	3,500	5.11	0.27	0.00	5.38
GRAPES	0	0	0.00	0.00	0.00	0.00
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	0	0	0.00	0.00	0.00	0.00
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	0	0	0.00	0.00	0.00	0.00
MISC. FRUIT	10	10	0.02	0.00	0.00	0.02
FIELD CROPS						
FIELD CORN	80	80	0.15	0.00	0.00	0.15
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	20	20	0.10	0.00	0.00	0.10
FLOWERS & FOLIAGE	560	560	2.57	0.00	0.00	2.57
WOODY ORNAMENTALS	160	160	0.54	0.00	0.00	0.54
IMPROVED PASTURE	7,000	490	0.47	0.00	0.00	0.47
SOD	320	320	0.76	0.00	0.00	0.76
TURF GRASS (GOLF)	2,875	1,678	4.69	1.11	0.00	5.80
TURF GRASS (OTHER)	136	136	0.29	0.02	0.00	0.31
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.08	0.91	0.00	0.99
FISH FARMING	0	0	0.00	0.00	0.00	0.00
=====						
	19,336	10,542	25.14	2.31	0.00	27.45
=====						
SPRINKLER ACREAGE	5,474	10,542				
LOW PRESSURE ACREAGE	670					
FLOOD ACREAGE	4,398					



VOLUSIA COUNTY DATA - 1986

TOTAL POPULATION 319,018
 TOTAL LAND AREA 1,207 SQ. MILES

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT'S PORTION :

POPULATION
 TOTAL 319,018
 PUBLIC SUPPLY 279,379
 SELF-SUPPLIED 39,639
 PER CAPITA 135

LAND AREA (ACRES)
 TOTAL AREA 772,480 1,207 SQ. MILES
 FARMED 32,390
 IRRIGATED 11,155

1986 WATER WITHDRAWALS (Mgal/d) by CATEGORY

	FRESH WATER			SALINE WATER			REUSE
	GROUND	SURFACE	TOTALS	GROUND	SURFACE	TOTALS	
PUBLIC SUPPLY (1)	37.74	0.00	37.74	0.00	0.00	0.00	0.00
DOMESTIC SELF-SUPPLY	5.35	0.00	5.35	0.00	0.00	0.00	0.00
COM/IND. SELF-SUPPLY	0.94	0.00	0.94	0.00	0.00	0.00	0.00
AGRICULTURAL IRR.	33.59	6.72	40.31	0.00	0.00	0.00	0.00
POWER GENERATION S-S	0.36	116.92	117.28	0.00	0.00	0.00	0.00
MISCELLANEOUS	7.06	0.00	7.06	0.00	0.00	0.00	0.00
	85.04	123.64	208.68	0.00	0.00	0.00	0.00
TOTAL GROUND		85.04					
TOTAL SURFACE		123.64					
COUNTY TOTAL		208.68					

(1) INCLUDES 0.02 Mgal/d OF SALINE GROUND WATER USED IN R/O FOR PUBLIC SUPPLY.

VOLUSIA

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

1986 INDIVIDUAL WATER USERS IN VOLUSIA COUNTY

USER UTILITY/FACILITY	USE TYPE	POPULATION SERVED	WITHDRAWAL(MGD)		WITHDRAWAL SOURCE
			GROUND	SURFACE	
DAYTONA BEACH - CITY OF	PUBLIC SUPPLY	79,798	12.407	0.000	FLORIDAN AQF.
DELAND - CITY OF	PUBLIC SUPPLY	26,220	4.374	0.000	FLORIDAN AQF.
DELTONA UTILITIES	PUBLIC SUPPLY	32,292	4.606	0.000	FLORIDAN AQF.
EDGEWATER - CITY OF	PUBLIC SUPPLY	11,039	1.151	0.000	FLORIDAN AQF.
HIGHLAND COUNTRY ESTATES	PUBLIC SUPPLY	515	0.040	0.000	FLORIDAN AQF.
HOLLY HILL - CITY OF	PUBLIC SUPPLY	11,937	1.272	0.000	FLORIDAN AQF.
INDIAN HARBOR ESTATES	PUBLIC SUPPLY	500	0.018	0.000	FLORIDAN AQF.
JOHN KNOX VILLAGE	PUBLIC SUPPLY	700	0.039	0.000	FLORIDAN AQF.
LAKE BERESFORD WATER ASSOC.	PUBLIC SUPPLY	862	0.163	0.000	FLORIDAN AQF.
LAKE HELEN - CITY OF	PUBLIC SUPPLY	2,389	0.235	0.000	FLORIDAN AQF.
NEW SMYRNA BEACH - CITY OF	PUBLIC SUPPLY	23,726	3.565	0.000	FLORIDAN AQF.
ORANGE CITY COUNTRY VILLAGE	PUBLIC SUPPLY	1,400	0.133	0.000	FLORIDAN AQF.
ORANGE CITY	PUBLIC SUPPLY	3,657	0.491	0.000	FLORIDAN AQF.
ORMOND BEACH - CITY OF	PUBLIC SUPPLY	38,000	4.125	0.000	FLORIDAN AQF.
PORT ORANGE - CITY OF	PUBLIC SUPPLY	35,650	3.838	0.000	FLORIDAN AQF.
SPRUCE CREEK UTILITIES	PUBLIC SUPPLY	1,202	0.219	0.000	FLORIDAN AQF.
SOUTHERN STATES UTILITIES	PUBLIC SUPPLY	N/A	0.000	0.000	FLORIDAN AQF.
SUGAR MILL UTILITY CO.	PUBLIC SUPPLY	979	0.104	0.000	FLORIDAN AQF.
TYMBER CREEK UTILITIES	PUBLIC SUPPLY	513	0.049	0.000	FLORIDAN AQF.
WEST VOLUSIA UTILITY CO.	PUBLIC SUPPLY	8,000	0.907	0.000	FLORIDAN AQF.
ARDMORE FARMS	INDUSTRIAL		0.016	0.000	FLORIDAN AQF.
FLORIDA DOT - I95 REST FAC.	INSTITUTIONAL		0.018	0.000	FLORIDAN AQF.
FLORIDA POWER & LIGHT - SANFORD	POWER GEN.		0.256	0.748	FLORIDAN AQF. & ST. JOHNS RIVER
FLORIDA POWER CORP. - LK. MONROE	POWER GEN.		0.103	116.167	FLORIDAN AQF. & LAKE MONROE
HARMAC MANUFACTURING CO.	INDUSTRIAL		0.007	0.000	FLORIDAN AQF.
ORANGE CITY INDUSTRIAL PARK	INDUSTRIAL		0.256	0.000	FLORIDAN AQF.
SHERWOOD MEDICAL MAN. CO.	INDUSTRIAL		0.210	0.000	FLORIDAN AQF.
T.G. LEE - LIFESTYLE DIV.	INDUSTRIAL		0.075	0.000	FLORIDAN AQF.
VOLUSIA COUNTY GOV. COMPLEX	INSTITUTIONAL		0.354	0.000	FLORIDAN AQF.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

TABLE A-20. WATER USE BY CROP FOR VOLUSIA COUNTY - 1986

	TOTAL ACRES		WATER USE IN MGD			
	FARMED	IRRIGATED	GROUND	SURFACE	RECLAIMED	TOTAL
=====						
VEGETABLE CROPS						
CABBAGE	680	680	0.68	0.00	0.00	0.68
CARROTS	0	0	0.00	0.00	0.00	0.00
CUCUMBERS	680	680	0.68	0.00	0.00	0.68
PEPPERS	0	0	0.00	0.00	0.00	0.00
POTATOES	0	0	0.00	0.00	0.00	0.00
TOMATOES	0	0	0.00	0.00	0.00	0.00
SWEET CORN	0	0	0.00	0.00	0.00	0.00
WATERCRESS	0	0	0.00	0.00	0.00	0.00
MISC. VEGETABLES	100	100	0.17	0.00	0.00	0.17
FRUIT CROPS						
BLUEBERRIES	10	0	0.00	0.00	0.00	0.00
CITRUS	700	350	0.43	0.02	0.00	0.45
GRAPES	5	5	0.01	0.00	0.00	0.01
PEACHES	0	0	0.00	0.00	0.00	0.00
PECANS	10	10	0.02	0.00	0.00	0.02
STRAWBERRIES	0	0	0.00	0.00	0.00	0.00
WATERMELLONS	200	200	0.21	0.00	0.00	0.21
MISC. FRUIT	0	0	0.00	0.00	0.00	0.00
FIELD CROPS						
FIELD CORN	0	0	0.00	0.00	0.00	0.00
PEANUTS	0	0	0.00	0.00	0.00	0.00
RICE	0	0	0.00	0.00	0.00	0.00
SORGHUM	0	0	0.00	0.00	0.00	0.00
SOYBEANS	0	0	0.00	0.00	0.00	0.00
SUGAR CANE	0	0	0.00	0.00	0.00	0.00
TOBACCO	0	0	0.00	0.00	0.00	0.00
WHEAT	0	0	0.00	0.00	0.00	0.00
MISC. GRAINS	0	0	0.00	0.00	0.00	0.00
ORNAMENTALS & GRASSES						
FERNS	5,600	5,500	22.11	4.54	0.00	26.65
FLOWERS & FOLIAGE	200	200	0.97	0.00	0.00	0.97
WOODY ORNAMENTALS	200	200	0.74	0.00	0.00	0.74
IMPROVED PASTURE	20,000	622	0.61	0.25	0.00	0.86
SOD	800	800	1.87	0.00	0.00	1.87
TURF GRASS (GOLF)	2,960	1,563	4.52	1.18	0.00	5.70
TURF GRASS (OTHER)	245	245	0.32	0.23	0.00	0.55
MISC. AGRICULTURAL						
LIVESTOCK	0	0	0.25	0.50	0.00	0.75
FISH FARMING	0	0	0.00	0.00	0.00	0.00
=====						
	32,390	11,155	33.59	6.72	0.00	40.31
=====						
SPRINKLER ACREAGE	9,695	11,155				
LOW PRESSURE ACREAGE	0					
FLOOD ACREAGE	1,460					