U.S. Geological Survey - National and State Water-Use Programs with 2015 Florida Water-Use and Trends

- Richard L. Marella – USGS Florida Water Use Specialist since 1988.
- Cooperative program between the USGS and FDER/FDEP from 1984 and 2014 and with FDACS from 2015 and 2018.
- Current status for 2020 is uncertain.

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USGS National Water-Use Program

- Started compiling water-use data by state in 1950 – published every 5 years since then (2015 recent).
- Provides current and past aquifer, county, hydrologic unit, and state withdrawal totals on-line.
- Depends on water-use data from local and state agencies in every state.
- Provides technical guidance, support, and funding for all 50 states for these data compilation efforts.
- Currently under the direction of the Water Availability and Use Science Program.

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USGS Florida Water-Use Program

- USGS - Directly funded each WMD to collect water-use for 1975, 1978, and 1980.
- Compiled and published water-use data by category, county, water management district, water source, and aquifer since 1985.
- Recently published 2015 results.
- Provides the data needed for the USGS National water-use compilations and report.

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Why is a statewide water-use program important

- Water-use data is a vital planning tool used in water availability assessments and projections by multiple agencies (WMD's, FDEP, FDACS, and others).
- An on-going project provides data consistency.
- Currently, all 5 Water Management Districts compile water use data annually, with 3 districts publishing withdrawal summaries annually.
- No state agency compiles statewide data for Florida.

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Overall

- The 2005 and 2010 USGS Water-Use Reports for Florida are the most requested and downloaded USGS reports in Florida.
- Generally, it takes between two and three years to collect, compile, verify, and publish water-use data for Florida. However, that is changing.
- Data and technical assistance from each water management district is crucial and has improved significantly since 2000.

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Water Use in Florida 2015

Findings from the 2015 USGS data collection and compilation effort for Florida.

Report is now available on-line under USGS Scientific Investigations-Report 2019-5147

Data tables are available on-line as Data Release at USGS ScienceBase

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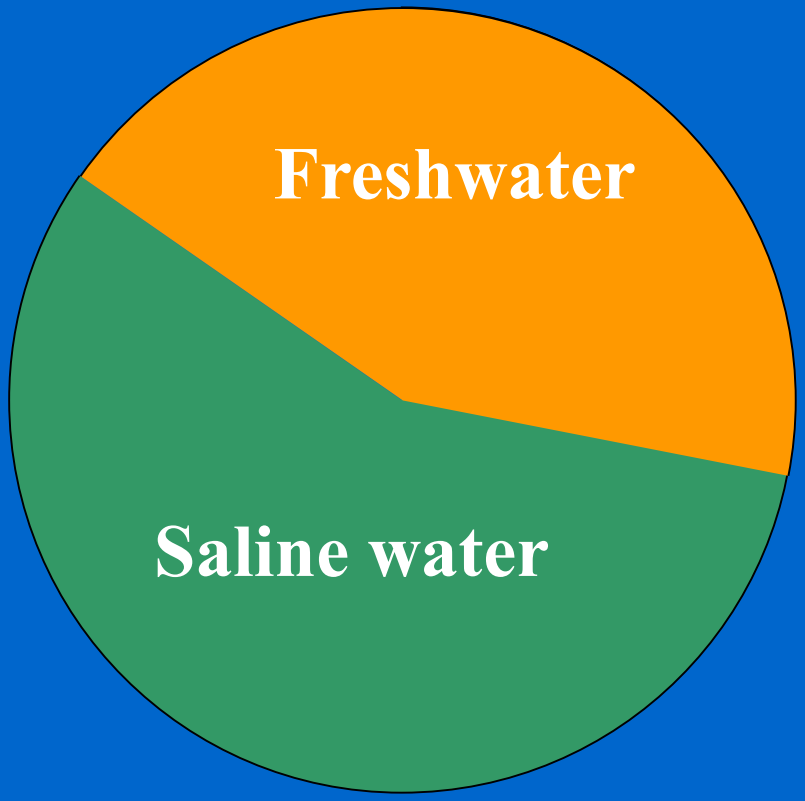
Total Water Use by Source 2015



- Total water withdrawn was 15,383 MGD (million gallons per day) or 15.4 billion gallons per day
- 61 percent was saline water, 39 percent was freshwater

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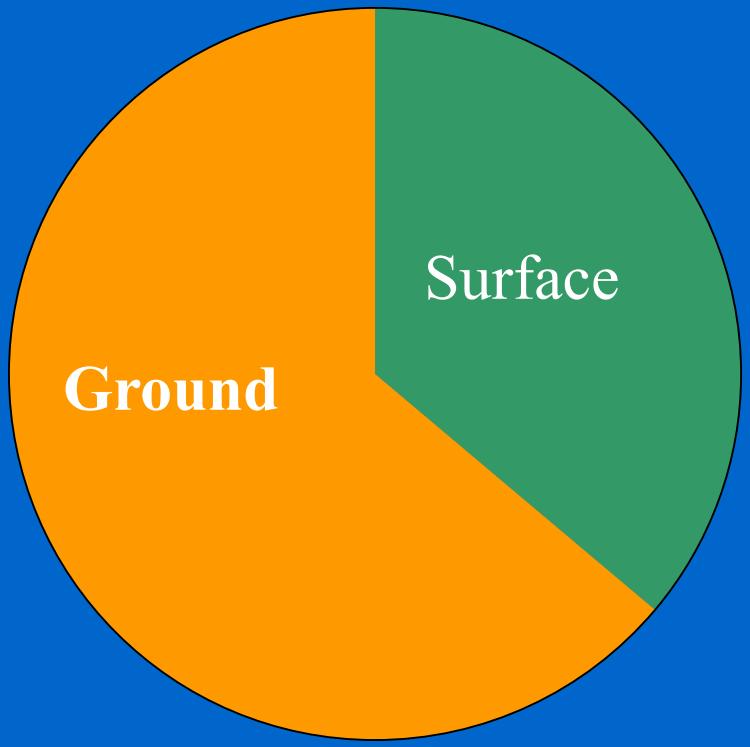
Freshwater Use by Source 2015



- 5,785 Total MGD
- 37.7 percent was from surface water sources
- 62.3 percent was from groundwater sources
- Nearly 2/3 of the groundwater was from the Floridan aquifer

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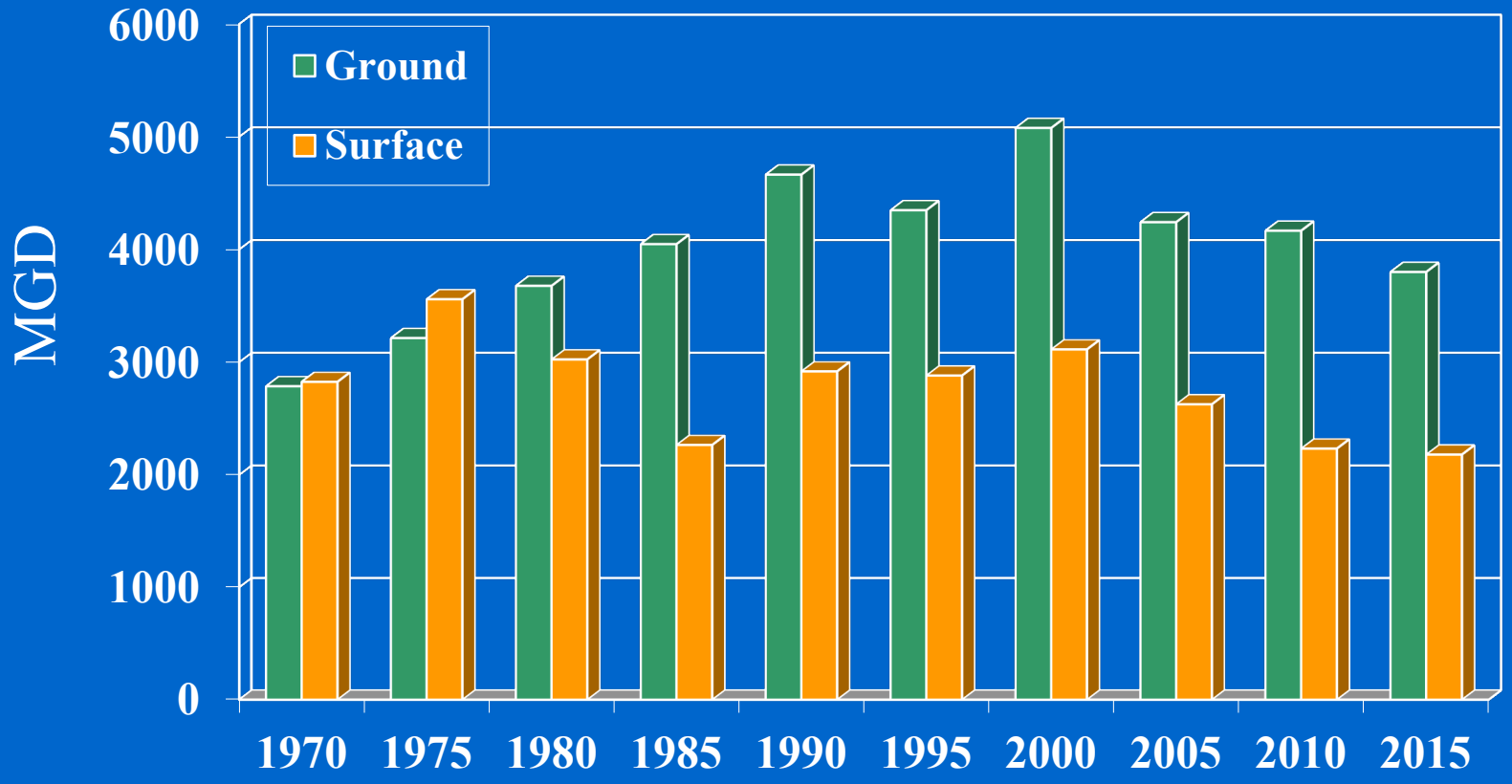
Freshwater Withdrawals by Source 1970-2015



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Freshwater Withdrawals 2015

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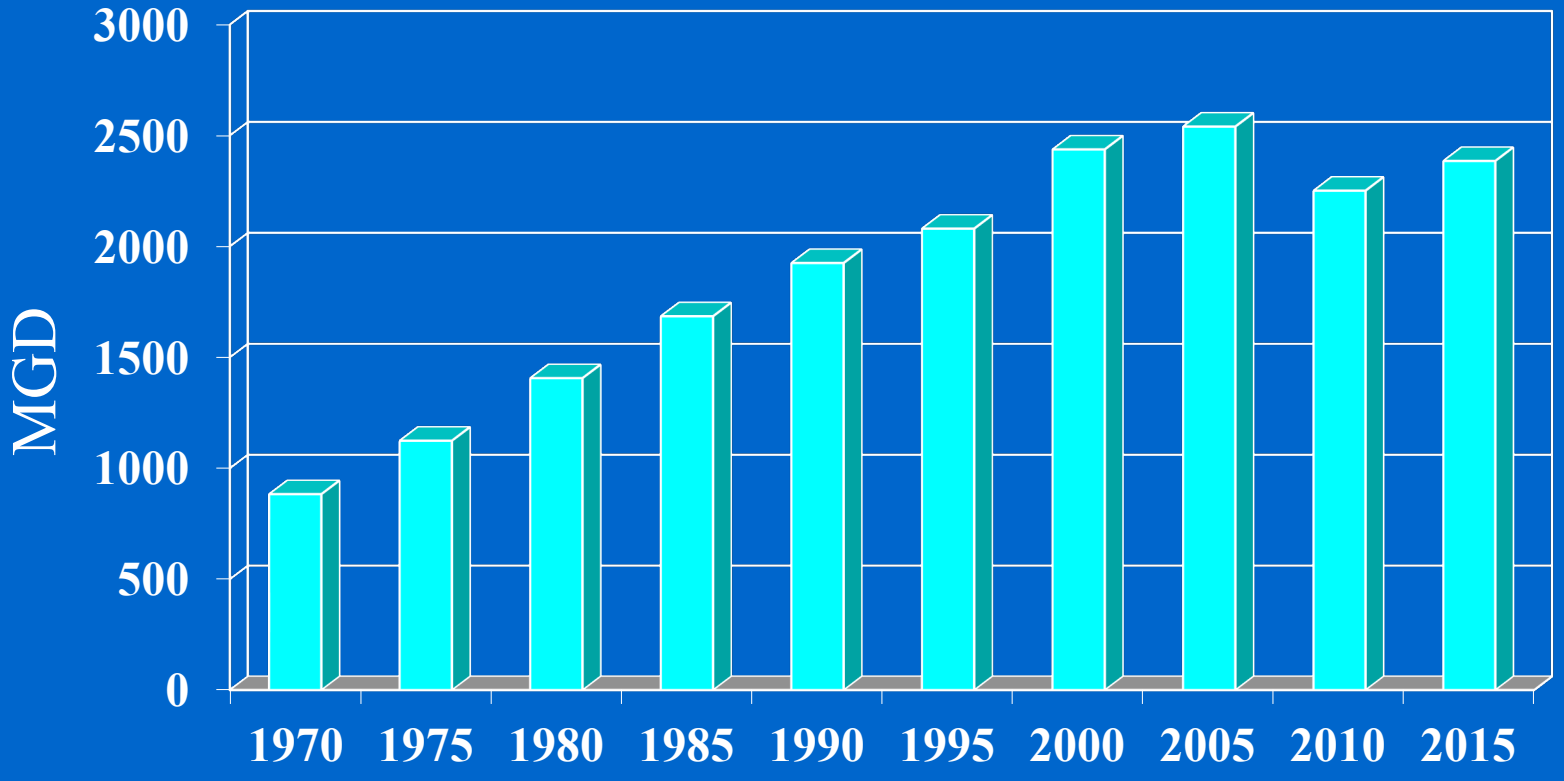
Public Supply Withdrawals 1970-2015



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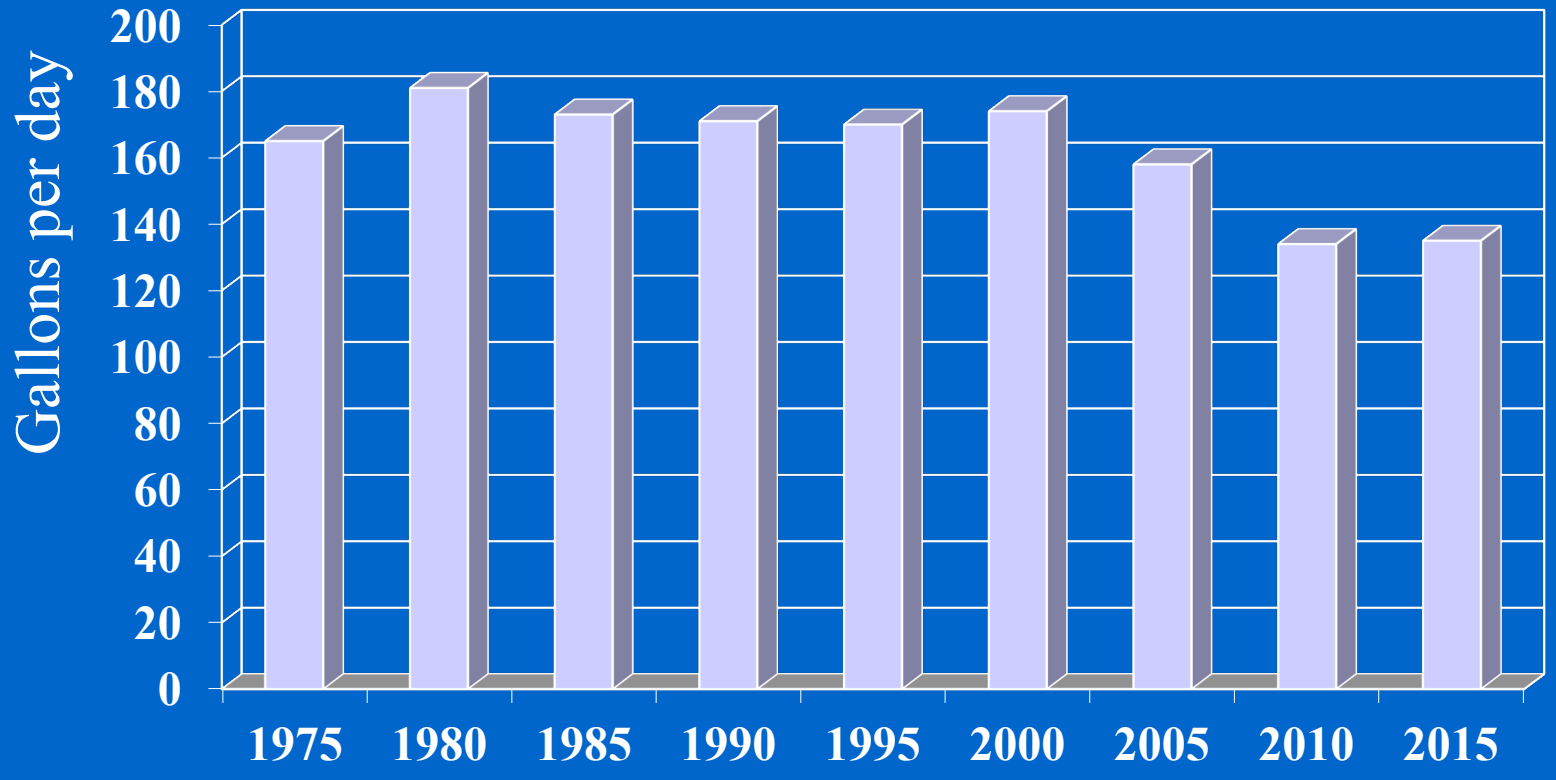
Per Capita Public Supply 1970-2015



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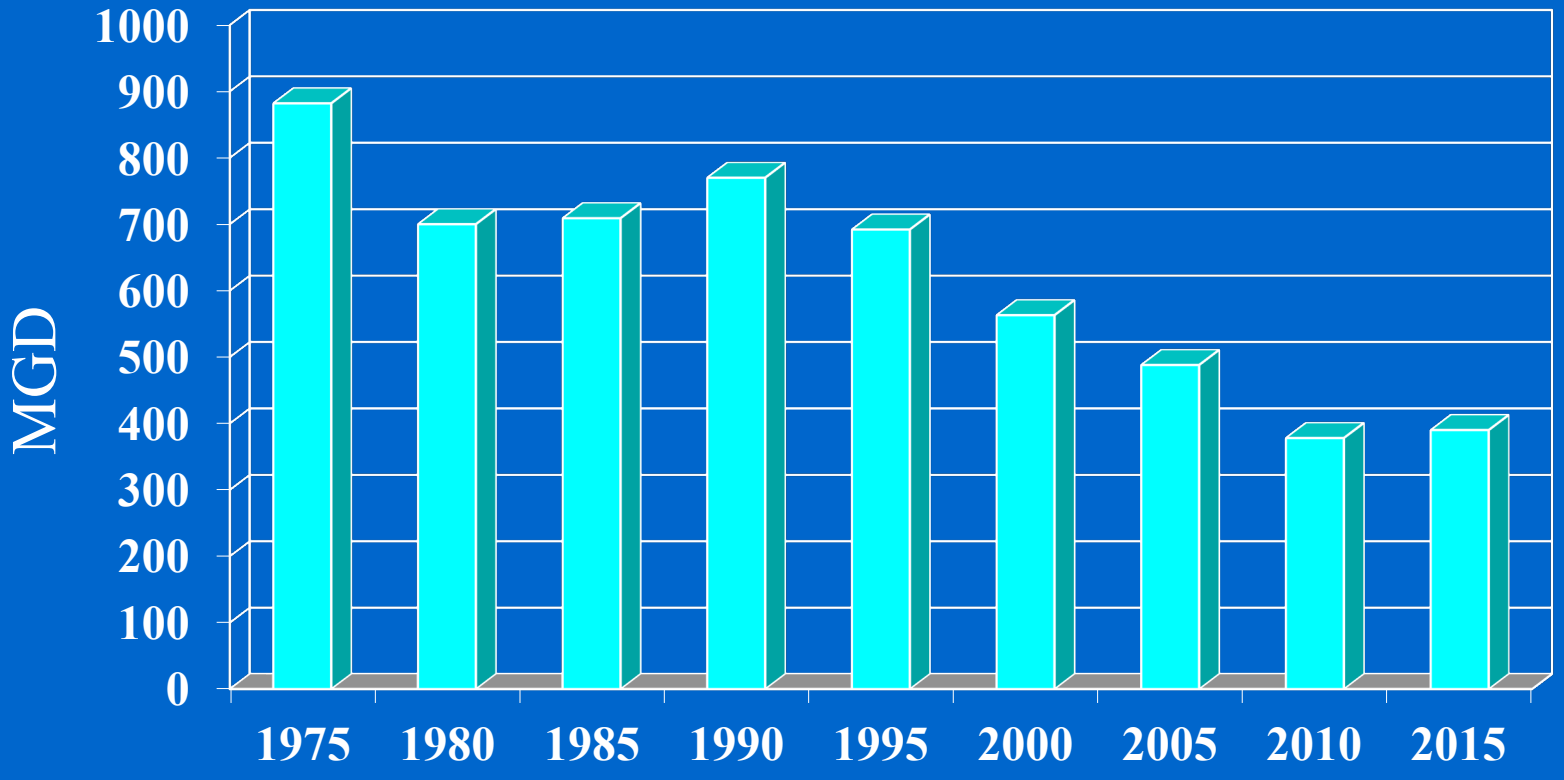
Industrial Withdrawals 1970-2015



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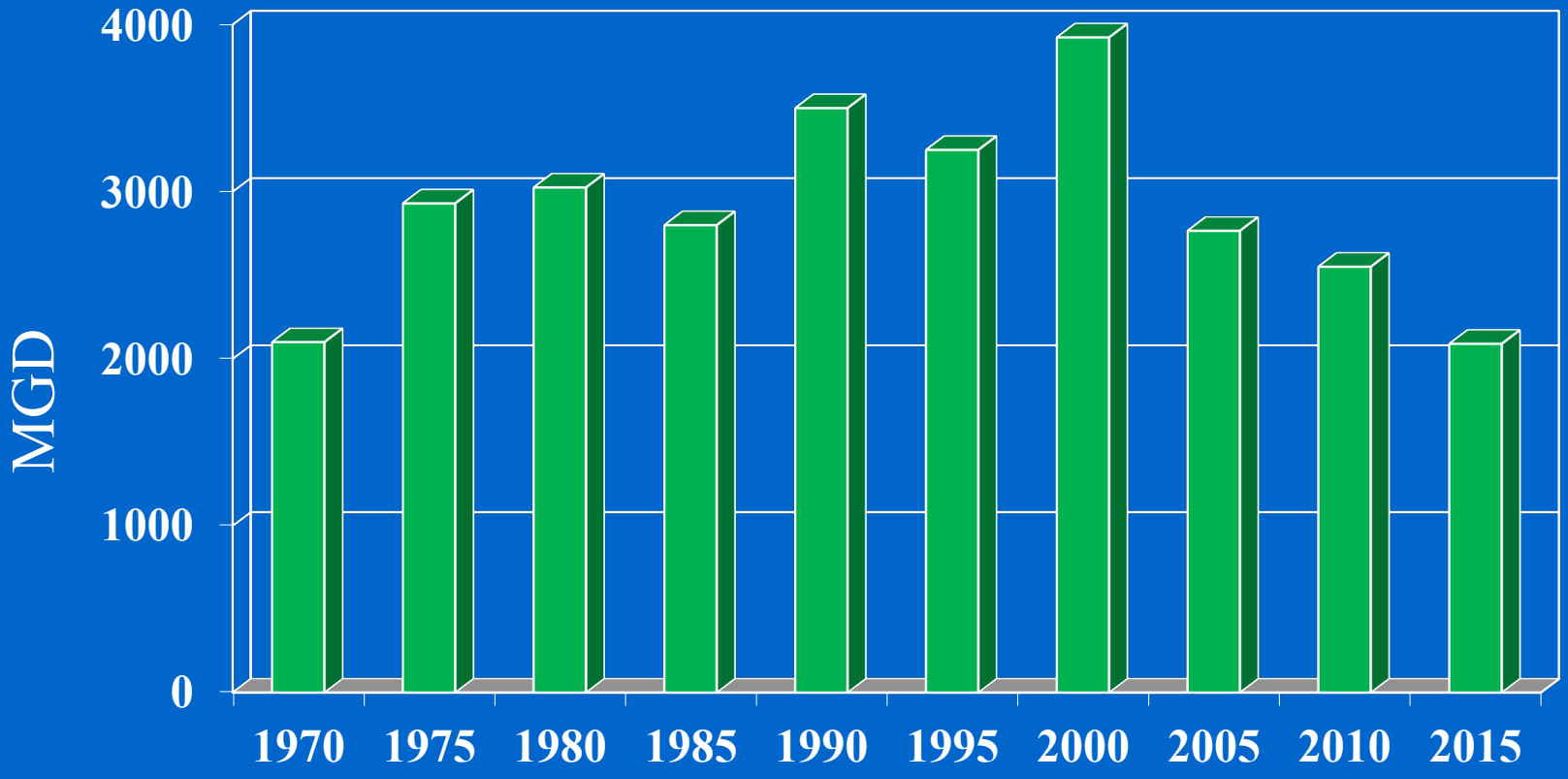
Agricultural Irrigation Withdrawals 1970-2015



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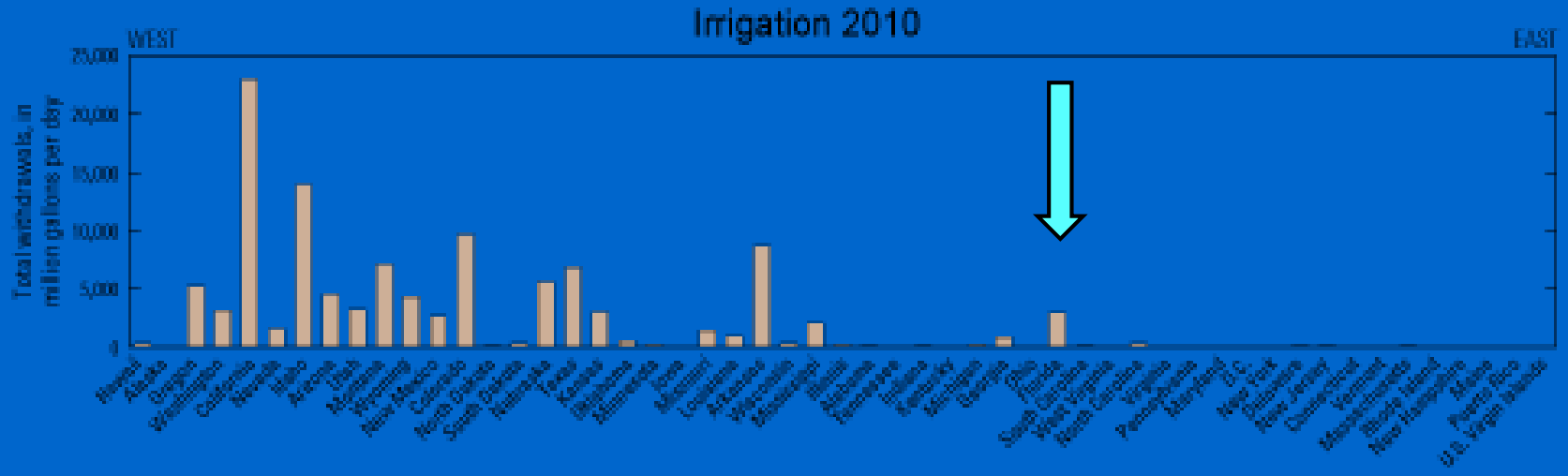
U.S. Irrigation Water Use by State

Florida had the largest irrigation withdrawals of any state east of the Mississippi River for 2010 and 2015



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Significant findings in 2015

- Public supply includes 170 Mgal/d of saline groundwater either diluted or R/O treated. This is 7 percent of the public supply withdrawals.
- Public supply is the largest user of fresh water, first time since data was first compiled in 1965.
- Agricultural withdrawals continue to decline as irrigated acreage (primarily citrus) is lost to diseases, weather events, and urbanization.
- Public supply per capita remained the same.

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Create a field-verified irrigated land-use map and acreage totals by crop type for every county in Florida – 2014-2019 (FDACS)

- FDACS created a spatial land-use cover for Florida – identify crop land and irrigated lands between 2012 and 2019 using satellite imagery, google maps, and WMD permits.
- Field validate the irrigated land-use cover for each county and identify the crops and irrigation system.

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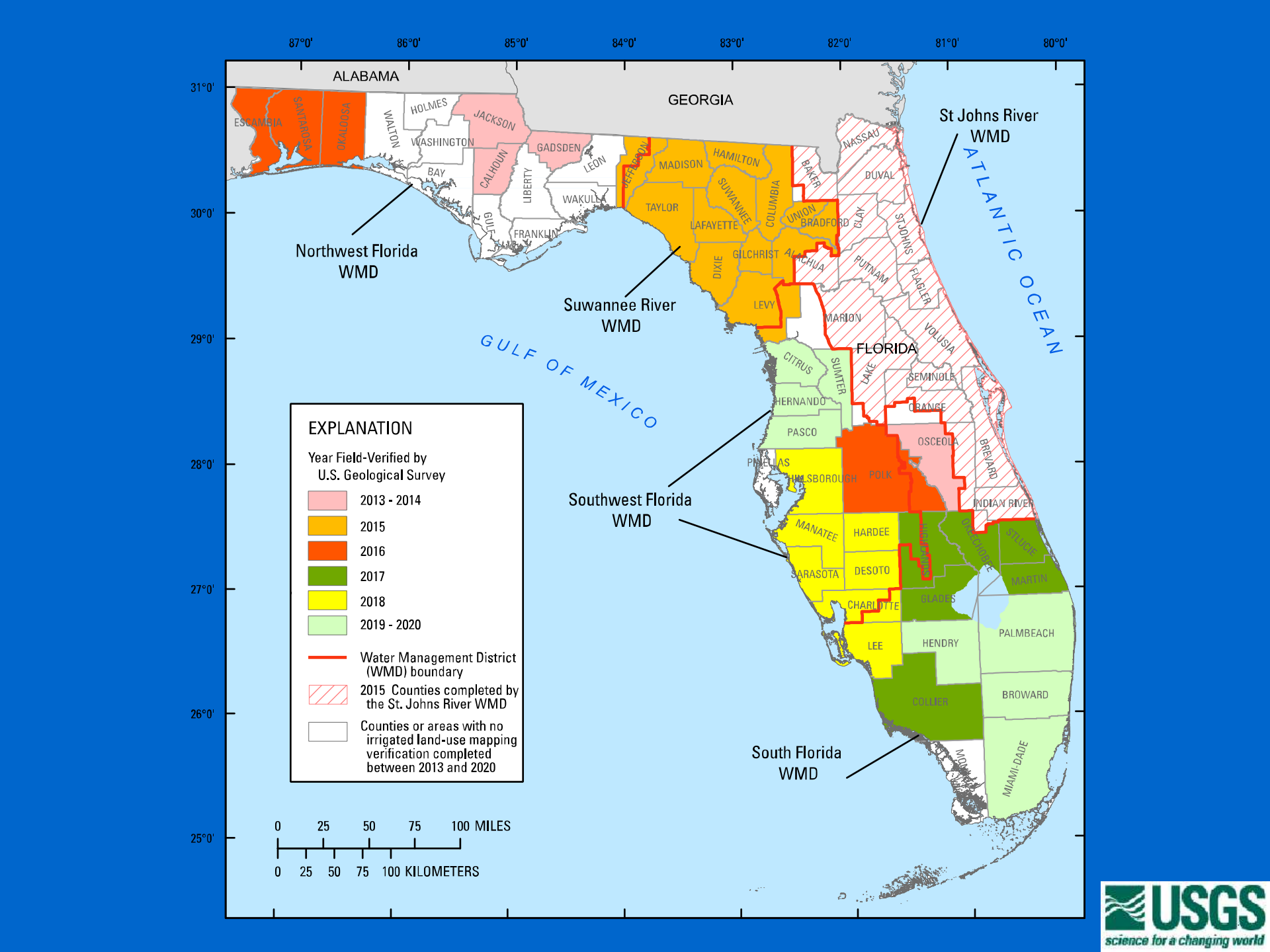
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WALTON
HOLMES
WASHINGTON
JACKSON
BAY
CALHOUN
GULF
LIBERTY
FRANKLIN
GADSDEN
WAKULLA
LEON
JEFFERSON
MADISON
TAYLOR
HAMILTON
SUWANNEE
LAFAYETTE
COLUMBIA
DIXIE
GILCHRIST
LEVY
UNION
BRADFORD
BAKER
NASSAU
DUVAL
CLAY
ST.JOHNS
PUTNAM
FLAGLER
VOLUSIA
MARION
CITRUS
SUMTER
LAKE
SEMINOLE
ORANGE
OSCEOLA
BREVARD
INDIAN RIVER
HERNANDO
PASCO
PINELLAS
HILLSBOROUGH
POLK
MANATEE
HARDEE
SARASOTA
DESOTO
CHARLOTTE
GLADES
HIGHLANDS
OKEECHOBEE
ST.LUCIE
MARTIN
LEE
HENDRY
PALMBEACH
COLLIER
BROWARD
MONROE
MIAMI-DADE
Northwest Florida WMD
Suwannee River WMD
Southwest Florida WMD
South Florida WMD
St Johns River WMD
EXPLANATION
Year Field-Verified by U.S. Geological Survey
2013 - 2014
2015
2016
2017
2018
2019 - 2020
Water Management District (WMD) boundary
2015 Counties completed by the St. Johns River WMD
Counties or areas with no irrigated land-use mapping verification completed between 2013 and 2020
0 25 50 75 100 MILES
0 25 50 75 100 KILOMETERS
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Other USGS cooperative projects designed to improve water-use accuracy

- Metering private lawn watering wells in Northwest and Southwest Florida to better determine the water use associated with these un-regulated withdrawals locally and statewide.
- Metering domestic self-supplied wells in Alachua County to better understand the water withdrawn and per capita for this water use category.
- Evaluate the trends of long term monthly public supply withdrawals in Florida (1985-2010).

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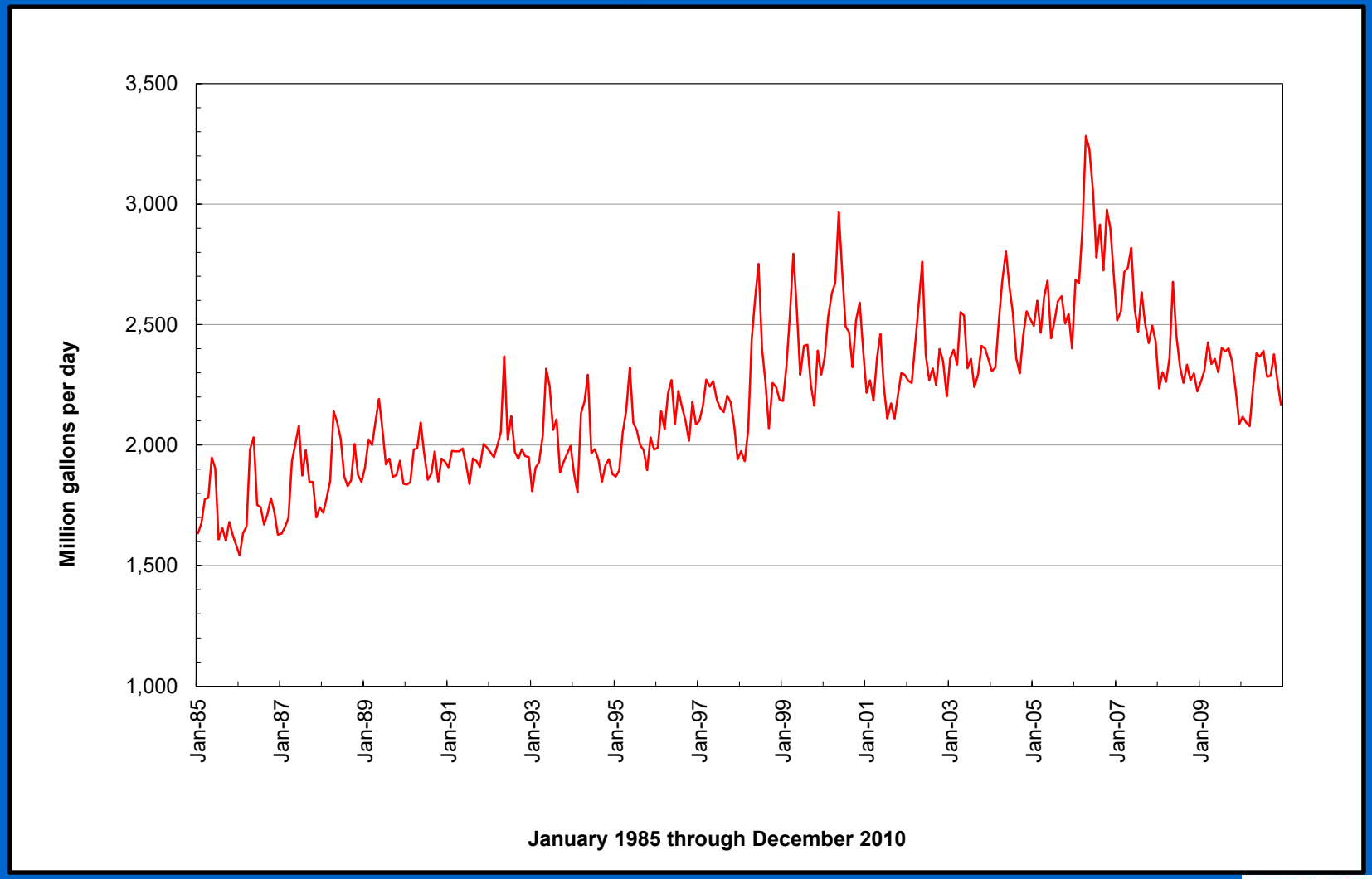
Monthly public supply withdrawals in Florida, 1985-2010



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http://www.usgs.gov/centers/car-fl-water/science/water-use