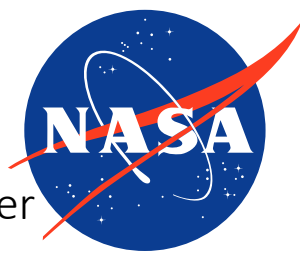
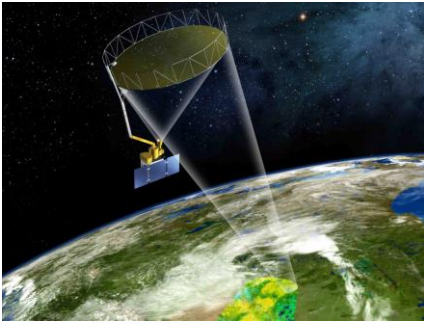


# Integrating NASA Earth Systems Data into Decision-Making Tools of Member Utilities of the Florida Water and Climate Alliance

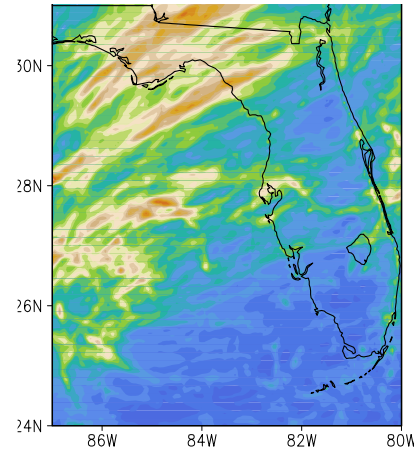


C. Martinez, UF; T. Asefa, Tampa Bay Water, T. Irani, UF; J. Judge, UF; V. Misra, FSU; K. Morris, Peace River

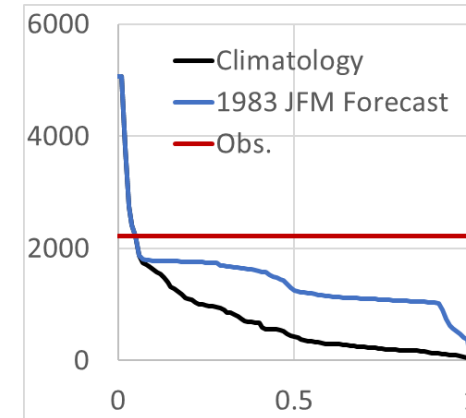
## Remotely Sensed Soil Moisture, LAI



## Regional Seasonal Climate Forecasts



## Seasonal Hydrologic Forecasts



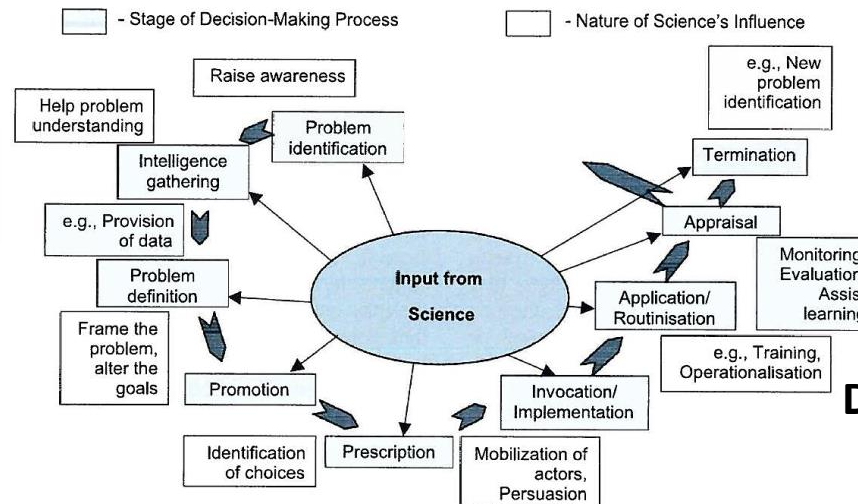
## Source Allocation



**UF** UNIVERSITY of  
**FLORIDA**



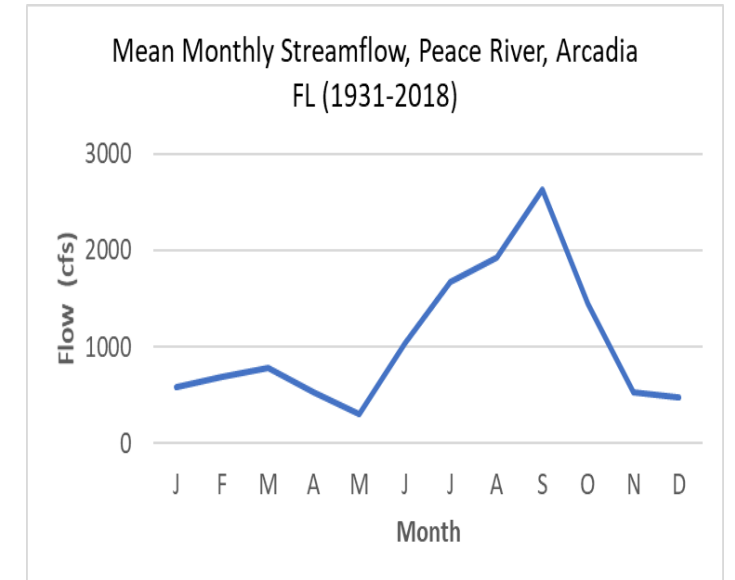
[www.FloridaWCA.org](http://www.FloridaWCA.org)



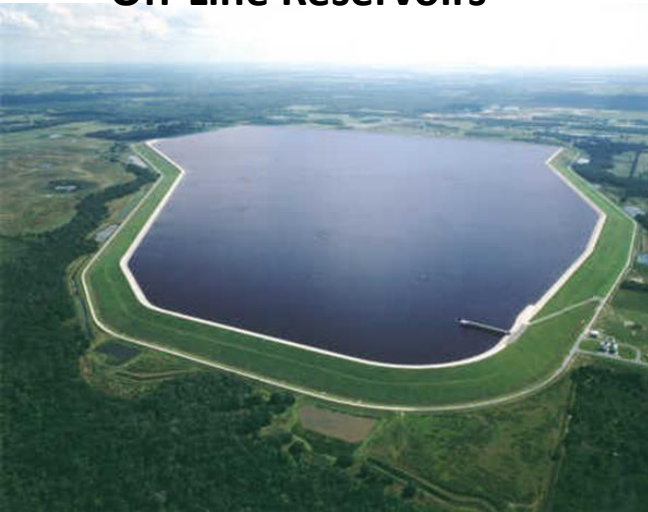
## Decision Making Process

# Motivation

- Florida has distinct wet and dry seasons
- Low capacity for “cheap” storage
- Utilities are now using multiple water sources
- **How to use the right source at the right time?**



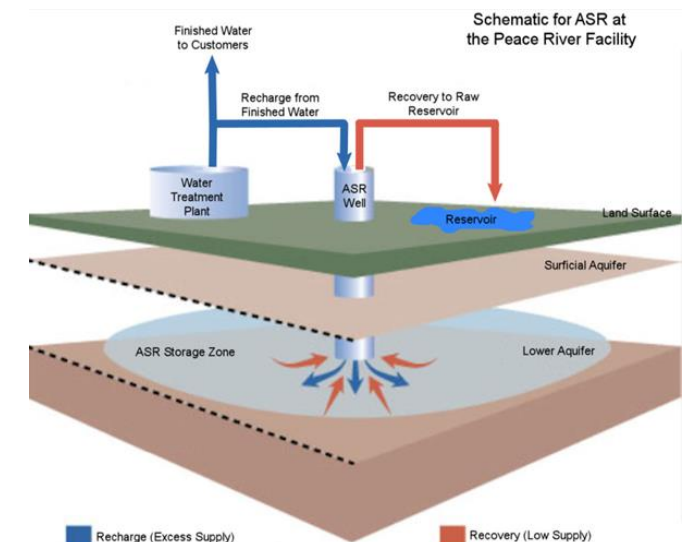
Off-Line Reservoirs



Desalination



Aquifer Storage and Recovery







# Tampa Bay Water

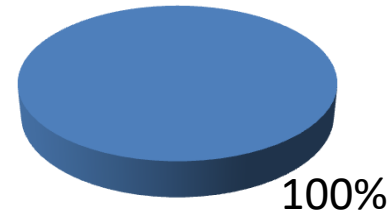
- Current sources:
  - Groundwater (13 Wellfields)
  - Hillsborough and Alafia Rivers
  - C.W. Bill Young Reservoir
  - Desalination Plant



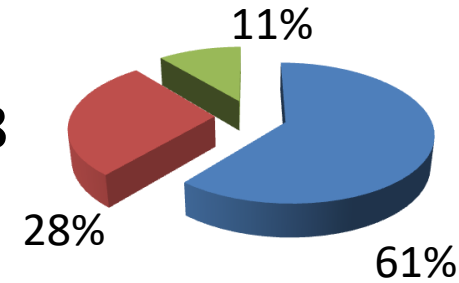
## Groundwater Permit

|          |         |                                 |
|----------|---------|---------------------------------|
| pre 1998 | 192 MGD | (12-month<br>moving<br>average) |
| 1998     | 158 MGD |                                 |
| 2002     | 121 MGD |                                 |
| 2008     | 90 MGD  |                                 |

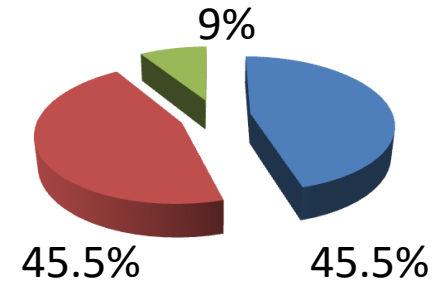
1998



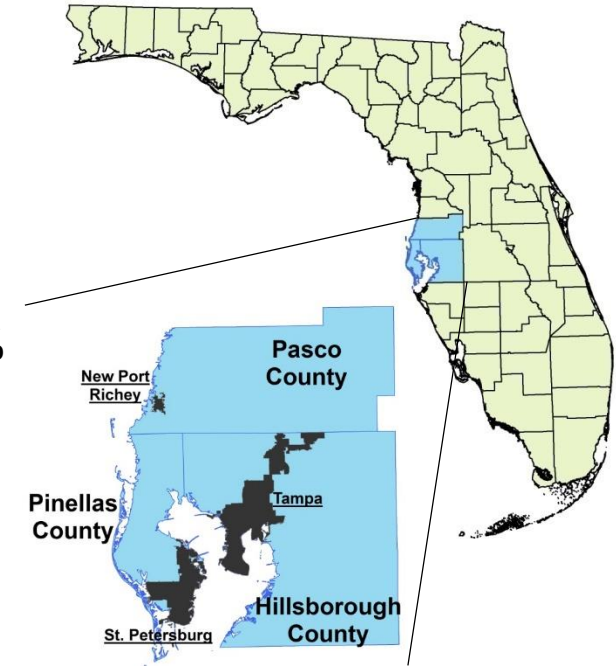
2008



2012



■ Groundwater  
■ Surface Water  
■ Desalination

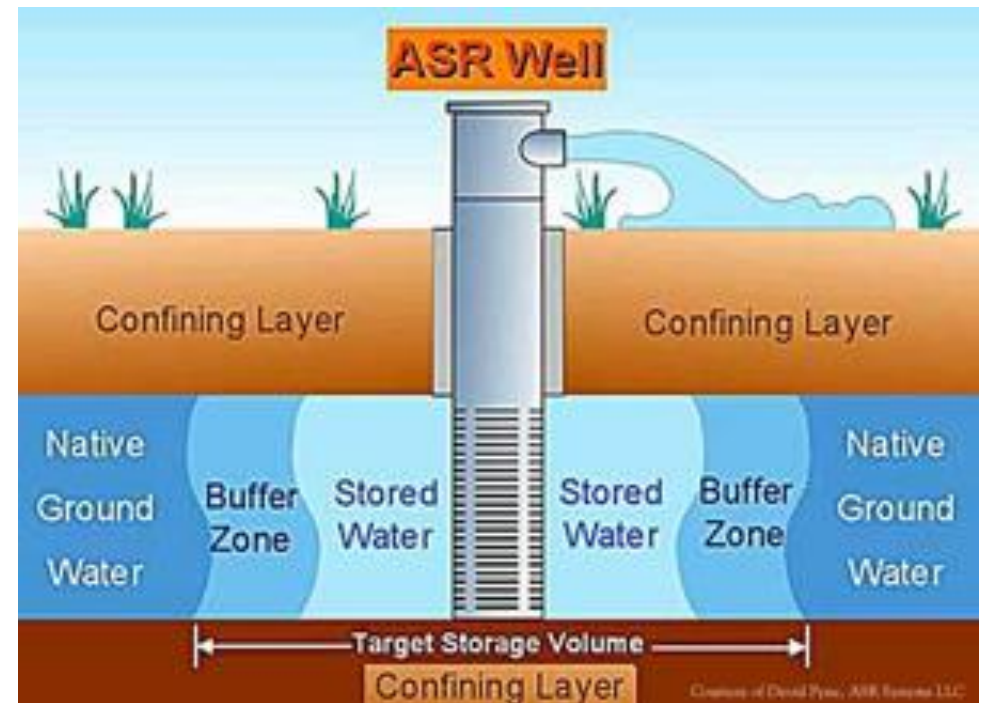
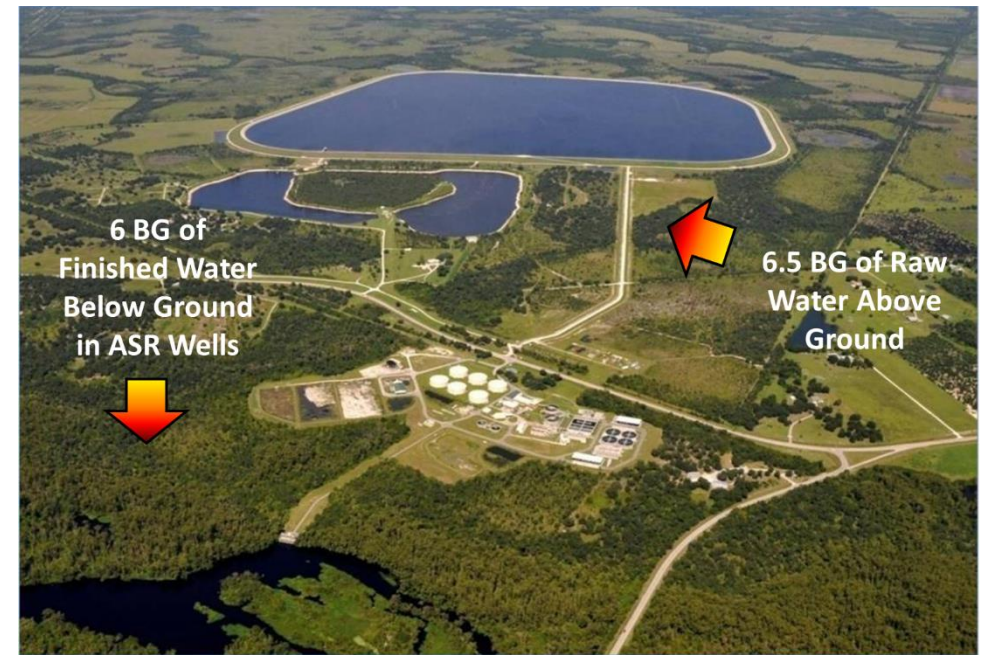




# Peace River



- Peace River is their only source
  - Reservoir
  - Largest Aquifer Storage and Recovery (ASR) system East of the Mississippi
- When to start recovery?
  - Too soon: costs go up (treated twice), higher TDS
  - Too late: less reservoir water to dilute TDS, saltwater upconing?





# Questions?

# 2010



# 2019



# Florida Water and Climate Alliance

[www.FloridaWCA.org](http://www.FloridaWCA.org)

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