Data, Data, Everywhere!
What Has Continuous Water Quality Monitoring Taught Us About Our Springs?

Data collected with funding from the Department of Environmental Protection (DEP) and cooperation from the United States Geological Survey (USGS) and Florida State Parks (FSP).
WQ Parameters Measured

- Temperature
- Specific Conductivity
- Dissolved Oxygen
- pH
- Dissolved Organic Matter
- Turbidity
- Nitrate-Nitrogen

Continuous Velocity and Levels where possible
2004 Estimated Manatee and Fanning Springshed Boundaries
Fanning Springs
Why Continuous Data?


- Continuous Nitrate
- Lab Samples at Equipment
- Lab Samples at Spring Vent

Nitrate (mg N/L)

Oct  Nov  Dec  Jan  Feb  Mar  Apr  May  Jun  Jul
Event Responses – Brown Outs

Normal Springflow Condition

Reverse Flow Condition

Temperature
Sp Cond
DO

Level
Nitrate
Tidal Influences - Fanning

Suwannee River Water Management District

Period: 7 Day 11/04/2014 to 11/08/2014

Water Level

Discharge

Nitrate

Sp Conductivity
Tidal Influences - Manatee

Suwannee River Water Management District

Water Level

Discharge

Nitrate

Sp Conductivity
Fanning Spring

Manatee Springs

Parameter Linkage

Under normal spring flow conditions

4/1/2015 to 5/31/2015
Super Cool Cave Data

**Disclaimer**
No scuba dives were performed on company time
M2 Blue Direction of overall water flow
M2 Blue

Diver Influence?

Turbidity NTU
General direction of water flow
Summary

• Dynamic systems, each responding to influences in a unique and complicated way

• Things we can now consider:
  – Tidal effects
  – Rainfall (local and regional)
  – Groundwater and River levels
  – Land use/ Groundwater Pumping
  – Geologic Conditions/ Connectivity
  – Parameter linkages/ Contamination Sourcing

Complicated? Yes. Worth it? Absolutely!
QUESTIONS?... ANSWERS?
We will accept either.

Darlene Saindon Velez  DDS@srwmd.org
Tara Rodgers  TER@srwmd.org