

Salinity Network Workgroup Meeting
1:00 – 3:00 PM
November 7, 2012
[Rick Copeland (FDEP)]

“Success is our ability to cooperate.”

**Welcome
and
Introduction**



Today's Scheduled Speakers

(In order of Scheduled Presentation)

- (RC) Rick Copeland, FDEP
- (DD) Dave DeWitt, SWFWMD
- (SP) Scott Prinos, USGS

Abridged, Modified Agenda

- I. Introduction (RC)
- II. Miscellaneous Issues (RC)
 - Status of Contacting Counties
 - Ratified Preamble, Mission, Goals, & Objectives
 - Status of Framework Document
 - Glossary (DD)
- III. **Potential Development of a WQ Index (SP)**
- IV. Percentile Ranking Pilot Study Issues (RC)
 - POR 1992-2012, 1998-2012, 2007-2012
 - Monthly Averages
 - PR Algorithm
 - Development of Potentiometric Map(s)
 - Data Transfer Status (Group)**
- V. Discussion, Action Items and Adjournment (RC)
- VI. Next SNW Meeting - **Wednesday, February 6, 1:00 – 3:00 pm**

Status of Contacting Counties

- List of Counties/ Cities, along with contact information $\approx$ 90% complete
- Invitation Letters - in Draft format

Ratified

- **Preamble**
- **Mission**
- **Goal**
- **Objectives**
- Can be Modified as needed
- Potential additional goals to consider

Preamble

- Encroachment of saline water into Florida's freshwater resources can adversely affect drinking water supplies, agriculture production, and industry as well as surface water environments. As such, degradation of water resources from saline encroachment can adversely impact the economy of the State. For these reasons, it is to the benefit of the citizens of Florida to have a comprehensive statewide method to monitor and evaluate saltwater encroachment.

Mission

- The mission of the Salinity Monitoring Network (informally referred to as the Salinity Network) is to assist in the management, protection, preservation, and restoration of Florida's groundwater and surface water resources, facilitated by the Florida Water Resources Council (Council) and the monitoring entities of the state, through means of coordination, assess monitoring activities and develop a statewide evaluation of saltwater encroachment. Emphasis is on monitoring and reporting of saline analytes, groundwater levels, along with surface water and spring flow, as they pertain to the encroachment of saline water into Florida's freshwater resources.

Goal

- The goal of the Salinity Monitoring Network is an ongoing effort to provide scientifically defensible data and information on the chemical, physical, and biological characteristics of water that can be used by the public, policy makers of the state, and the scientific community in order to better understand the status and trends regarding the encroachment of saline water into Florida's freshwater resources. Information generated by monitoring network activities is meant to assist policy makers in their decision making processes.

Objectives

- Monitor the quantity and quality of Florida's freshwater resources as related to saltwater encroachment.
- Encourage groundwater and surface water monitoring programs in Florida to participate in Council activities and work toward common goals.
- Assist the Council in developing methods for the easy transfer of relevant data as necessary. This includes the development of a common understanding of data and the data structure of the various databases.
- Through the Council, encourage the timely reporting of the status and trends for saline analytes, groundwater levels, and surface water and spring flows.

Objectives (continued)

- Develop and use indices and other tools to evaluate the status and trends of saltwater encroachment that, to the extent practical, are uniform among monitoring entities in calculation methodologies, and are relatively easy to understand by the general public, policy makers and the scientific community.
- Use commonly defined indices and other tools to assist in evaluating the threat of encroachment to water supplies, and determining the cause of saltwater encroachment.
- Encourage the use of, and for Salinity Network monitoring projects, use the US Environmental Protection Agency's Data Quality Objective process in Salinity Network monitoring projects (<http://www.epa.gov/quality/qs-docs/g4-final.pdf>)

Potential Additional Objectives

(To be considered at a Later Date)

- Improve the quality of sampling throughout the state by:
(1) evaluating the best sampling methodologies for saline water given its physical properties, (2) developing standard operating procedures to apply these methodologies, and (3) periodically evaluating the quality of the sampling by reviewing salinity sampling methods used throughout the state.
- Evaluate improvements in the technology used for salinity monitoring, and whenever practical, develop the standard operating procedures that will be used to implement these advances.

Framework Document (Status)

(EPA – 10 Steps)

(<http://www.epa.gov/owow/monitoring/repguid.html>)

- Program Strategy
- Monitoring Objectives
- Monitoring Design
- Indicators
- Quality Assurance
- Data Management
- Data Analysis and Assessment
- Reporting
- Programmatic Evaluation
- General Support and Infrastructure Planning



SalNet Glossary – Status

(Dave DeWitt)

Glossary of Terms and Acronyms (DD)

- terms and definitions adopted by the SNW for the Framework document and subsequent products
- to include terms previously submitted (and more)
(ref. USGS documents and online resources, NWQMC, etc.)
- include acronyms, i.e. FWRMC, SalNet, etc.
- key definitions to be decided on by the group
 - saltwater vs. seawater
 - encroachment vs. intrusion
 - definitions for fresh, brackish, saline water
- will forward an expanded list of terms, acronyms, and suggested definitions to the SNW participants for review prior to the next scheduled meeting



Potential Development of a Water Quality Index for Saline Indicators (Scott Prinos)

Percentile Ranking Study Abridged Overview (RC)

- Produce one Percentile Ranking (PR) index map for Spring 2010 for the Upper Floridan aquifer (UFA)
 - **Purpose** – Can SNW overcome obstacles
 - If so, periodically produce PR maps for aquifers or other mappable units
 - **Possibly** – Produce side-by-side potentiometric maps with PR maps

U.S. Drought Monitor

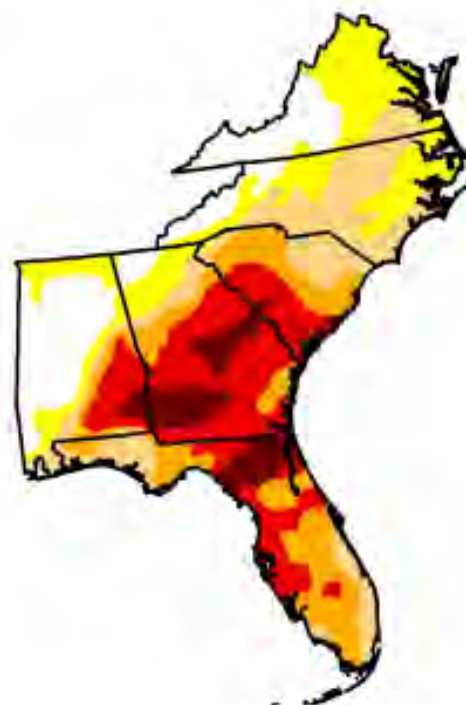
Southeast

April 17, 2012
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	17.04	82.96	63.56	43.54	27.65	7.14
Last Week (04/10/2012 map)	17.84	82.16	63.41	39.97	25.35	5.29
3 Months Ago (01/17/2012 map)	28.63	71.37	52.85	33.73	23.65	1.50
Start of Calendar Year (12/27/2011 map)	40.38	59.62	43.05	28.62	18.71	0.00
Start of Water Year (09/27/2011 map)	42.24	57.76	41.82	31.77	23.48	0.00
One Year Ago (04/12/2011 map)	30.65	69.35	48.75	15.15	4.60	0.00

Intensity:



The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. See accompanying text summary
for forecast statements.

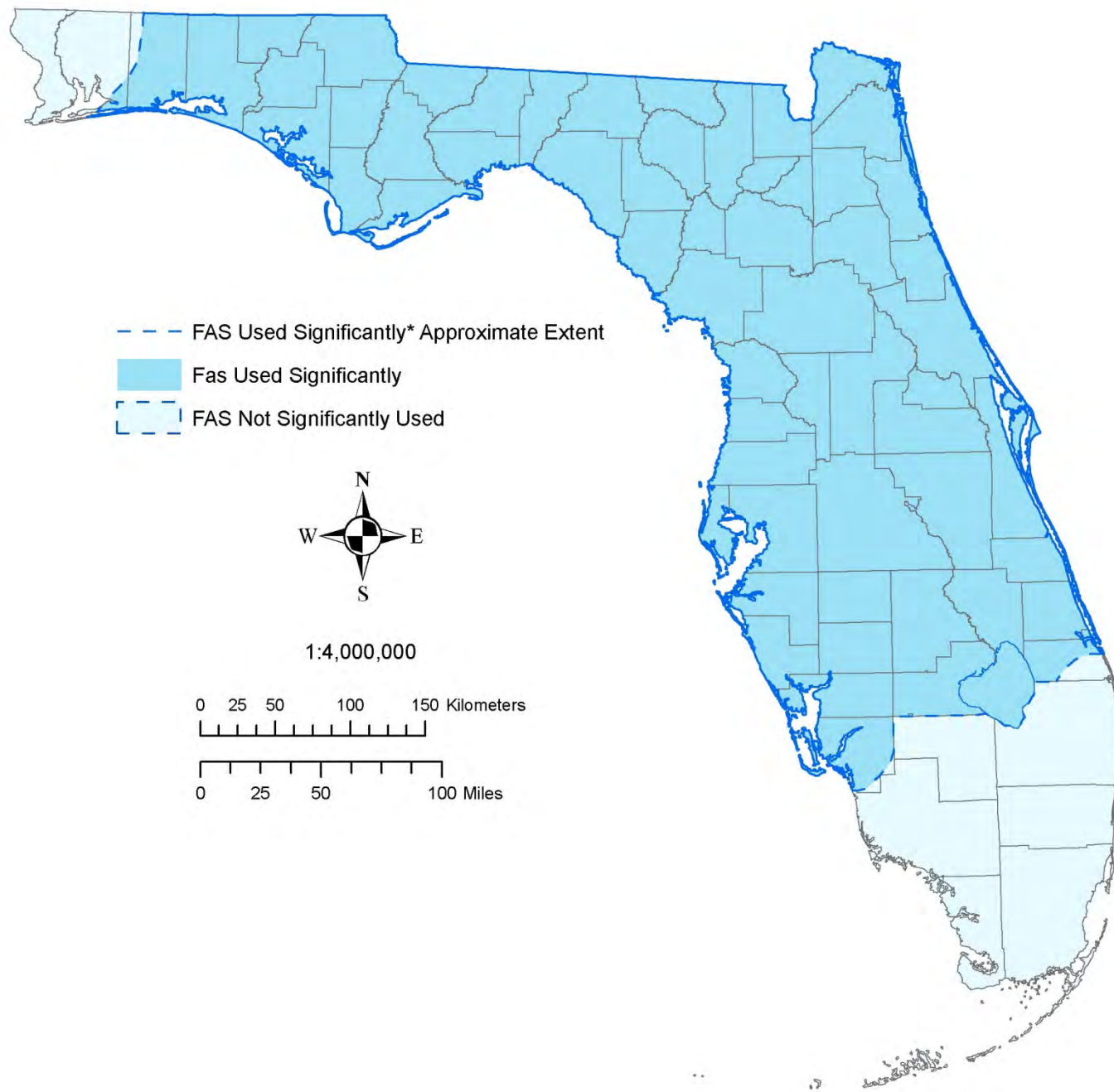
<http://droughtmonitor.unl.edu>



Released Thursday, April 19, 2012
Anthony Artusa, Climate Prediction Center/NCEP/NWS/NOAA

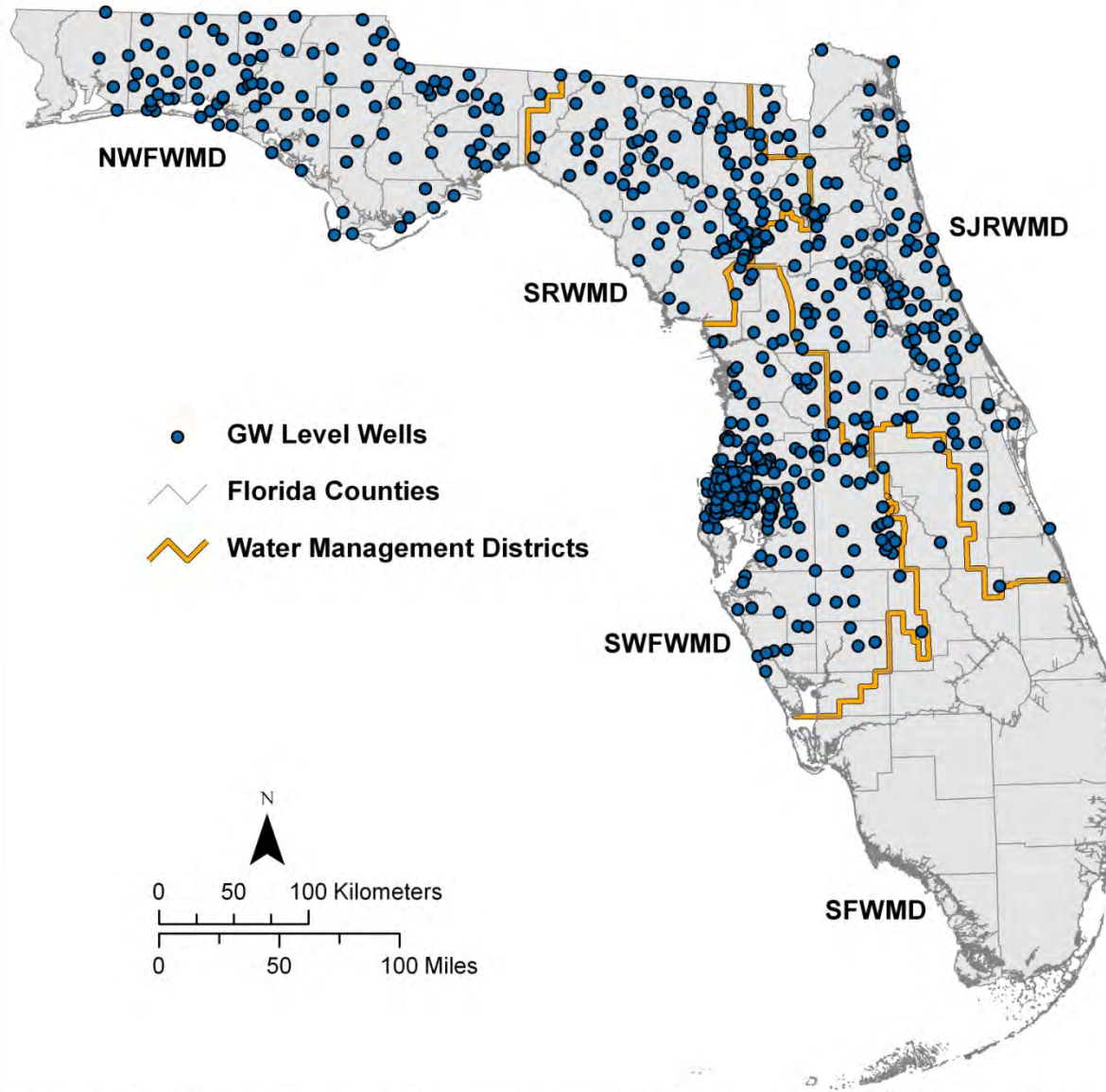
PR Pilot Study Status

- UFA well locations
- Periods of Record (POR)
 - 1992-2012, 1998-2012, 2007-2012
- Number of Obs. /POR
- PR Algorithm



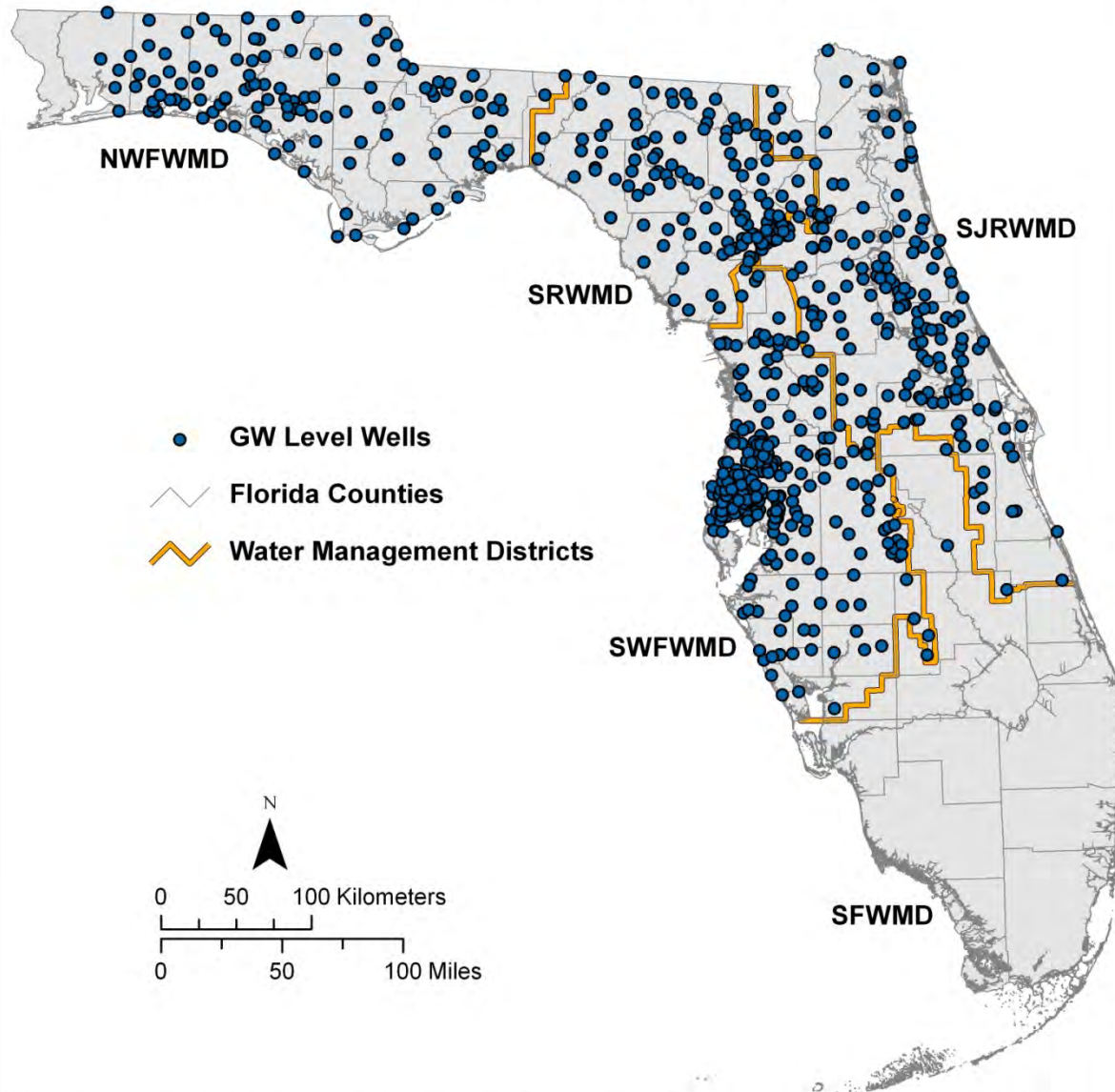
* Significant is greater than 5% of county groundwater use based on 2000 data from Marella and Bendt (2005).

STATEWIDE - UPPER FLORIDAN AQUIFER GROUNDWATER LEVEL REAL PERIOD OF RECORD: 1992 - 2011



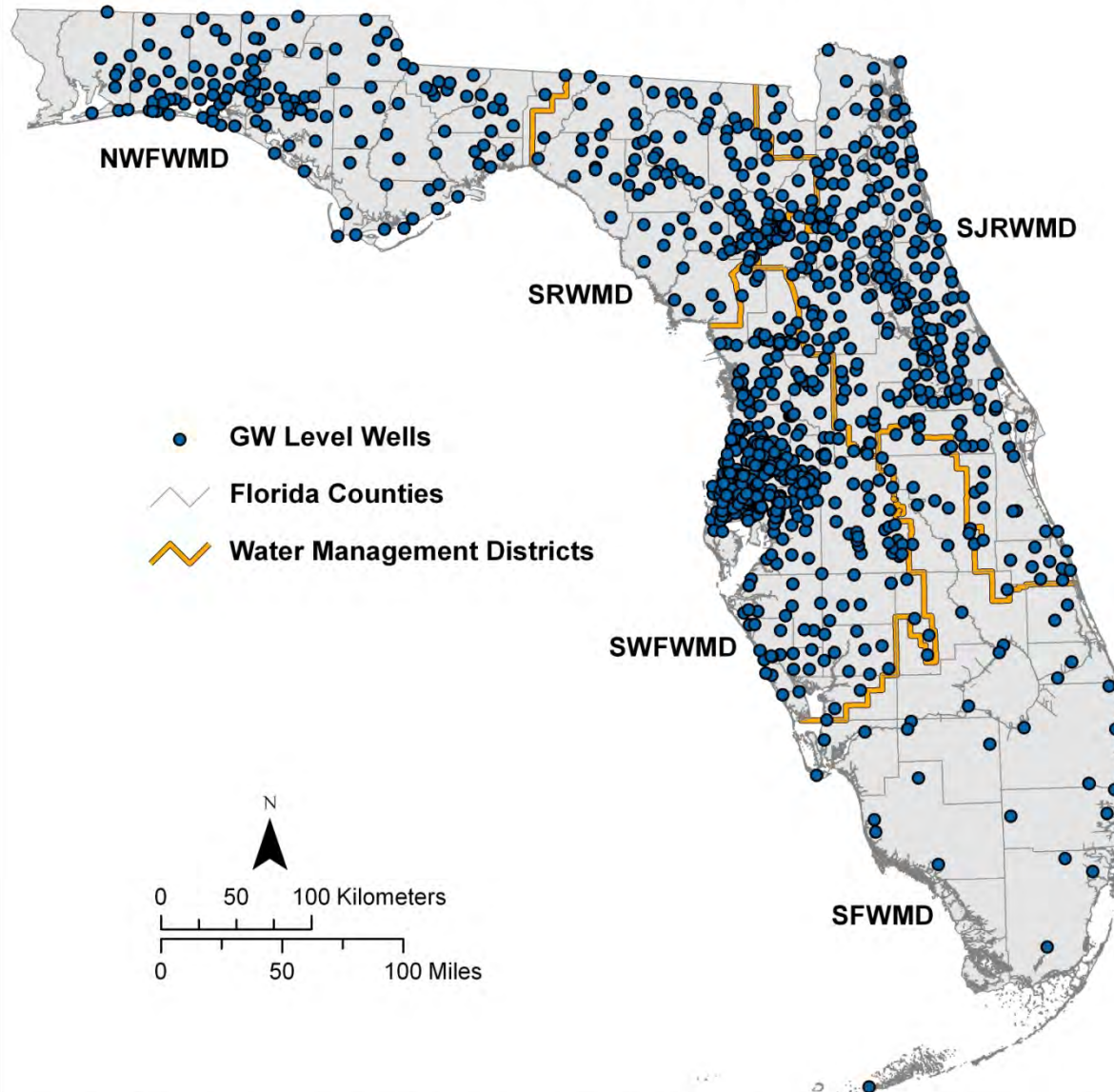
Created July 30, 2012 by Florida Department of Environmental Protection staff in the Division of Environmental Assessment and Restoration, Watershed Monitoring Section. This map is a representation of ground conditions and is not intended for further analysis.

STATEWIDE - UPPER FLORIDAN AQUIFER GROUNDWATER LEVEL REAL PERIOD OF RECORD: 1998 - 2011



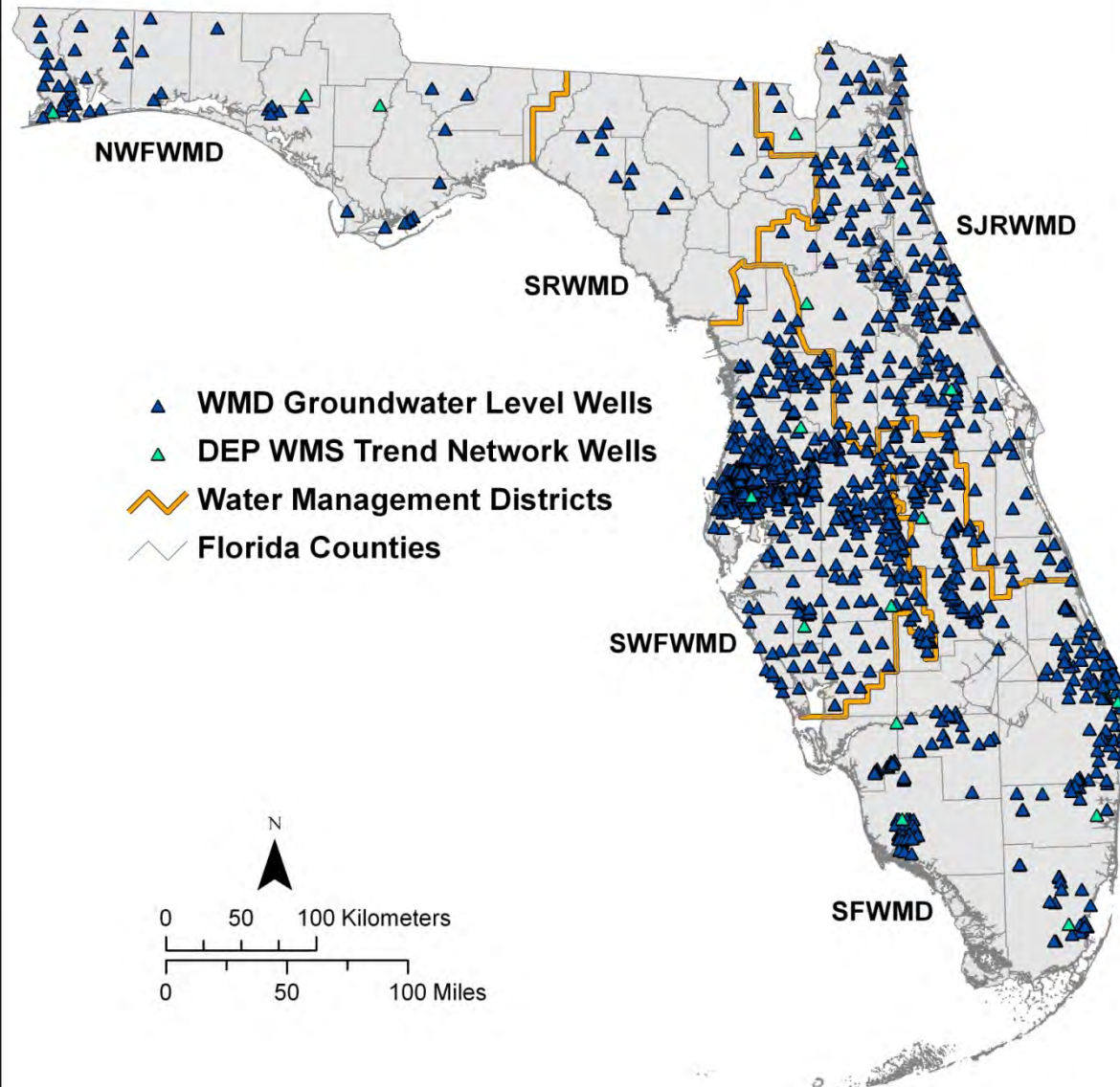
Created July 30, 2012 by Florida Department of Environmental Protection staff in the Division of Environmental Assessment and Restoration, Watershed Monitoring Section. This map is a representation of ground conditions and is not intended for further analysis.

STATEWIDE - UPPER FLORIDAN AQUIFER GROUNDWATER LEVEL REAL PERIOD OF RECORD: 2007 - 2011



Created July 30, 2012 by Florida Department of Environmental Protection staff in the Division of Environmental Assessment and Restoration, Watershed Monitoring Section. This map is a representation of ground conditions and is not intended for further analysis.

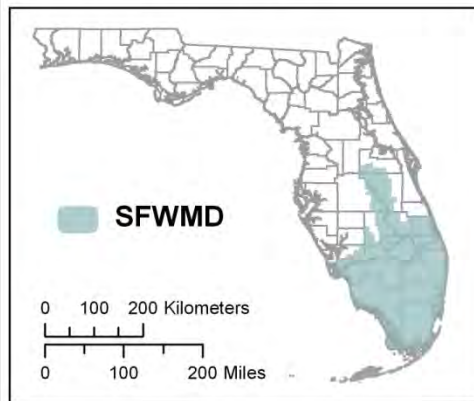
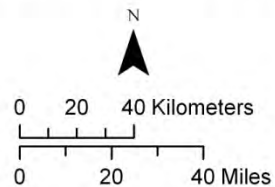
GROUNDWATER LEVEL SURFICIAL AQUIFER SYSTEM



Created January 20, 2012 by Florida Department of Environmental Protection staff in the Division of Environmental Assessment and Restoration, Watershed Monitoring Section. This map is a representation of ground conditions and is not intended for further analysis.

SFWMD - CONSUMPTIVE USE PERMITS - ALL WELLS

- ◆ CUP Wells
- SFWMD
- All Other WMDs
- Florida Counties



Back to Pilot Study

- Periods of Record (POR)
 - 1992-2012 (605 wells)
 - 1998-2012 (753 wells)
 - 2007-2012 (1065 wells)

PR Pilot Study Issues of Concern

- POR 1992-2012, 1998-2012, 2007-2012
- Long strings of data for some wells
 - Do we use Monthly Means?
 - Appropriateness for inclusion of wells?
- # of observations per POR?
- Standardized PR Algorithm?
- Develop Potentiometric Maps?
- **Data Transfer (Group)**

Minimum Data Elements

- Unique_Well_ID
- Station_Name
- Organization_Maintaining_Well
- Agency_Collecting_Data
- Measurement_Collection_Date
- Aquifer_Tapped
- Latitude, Longitude
- Measuring_Pt_Elevation
- XY_Datum, Z_Datum
- Water_Level_Val(ft below MP), or
- Water_Level_Val(ft above reference pt)
- Field_Specific_Cond($\mu\text{S}/\text{cm}$ @ 25 °C)_Val
- MPE only if Water_Level_Val(ft above reference pt) is not supplied
- Datum conversion factor?
- Location_Collection_Method

- **LOCATION_COLLECTION_METHOD**

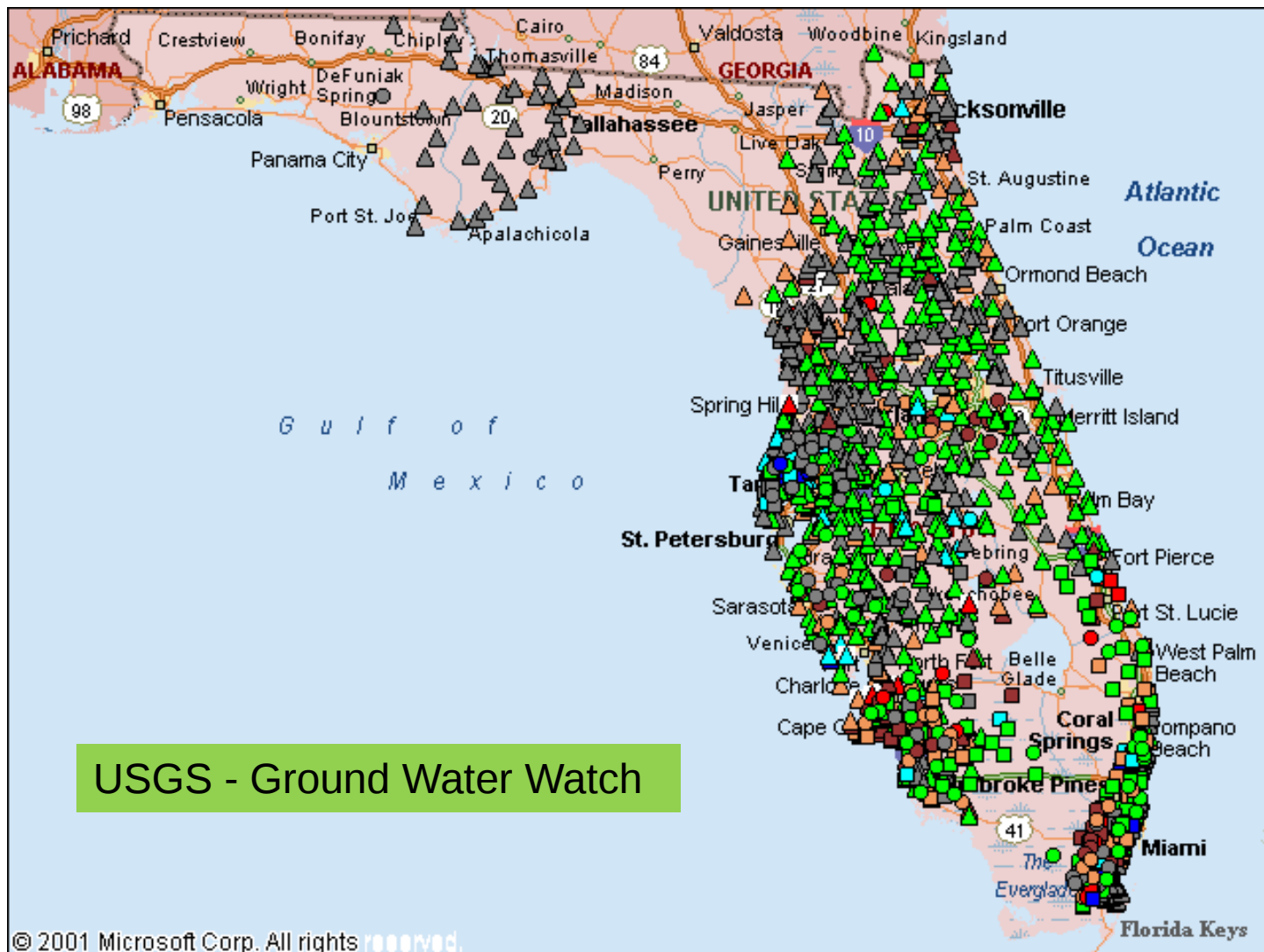
(The method or mechanism used to derive the location measurements.)

Domain:

- ADDM – Address Matching
- AGPS – Autonomous GPS
- CALC – Calculated by GIS Software
- CSUR – Cadastral Survey
- DGPS – Differentially Corrected GPS
- DMAP – Digital Map Interpolation
- DPHO – Digital Aerial Photography With Ground Control
- GGPS – Geodetic Quality GPS
- LORN – LORAN-C Navigational Device
- MMAP – Manual Map Interpolation
- MPHO – Manual Aerial Photography With Ground Control
- OTHR – A Method Not Listed
- SATI – Satellite Imagery With Ground Control
- WGPS – GPS with Wide-Area Augmentation Service Correction
- UNKN – Unknown Method
- ZIP2 – ZIP Code + 2 Segment Centroid
- ZIP4 – ZIP Code + 4 Segment Centroid
- ZIPC – Zip Code Centroid

Expressed Concerns

- Concerning PR Index, does USGS already have one. If so, could it be used ?
- Much Data already in public databases, can we simply use that data?
- The effort to convert data to the “Standardized” format requires efforts from other units of our organization. We may not be able to convince them to convert the data (insufficient resources).



Explanation - Percentile classes (symbol color based on most recent measurement)							
							Real Time
	<10	10-24	25-75	76-90	>90		Continuous
Low	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal	High	Periodic Measurements
						Not Ranked	

Response (RC) – Data Storage and transfer

The data necessary to produce a PR Index map for the UFA are not available in one place. At the current time, the SNW does have well data. Unfortunately, water level data currently resides in many different databases. In order to produce the pilot map, the SNW needs the data. If the SNW wants to produce PR maps in the future, we will need to transfer data. The SNW can either: (A) have one person at a central location reformat everyone's data, or (B) each participating agency can transfer their data to a common transfer format. Once we know the most efficient path, we can proceed. For our part here in Tallahassee, Stephanie, Jay, and I will estimate what resources it will take for one person to reformat data. When I hear back from each agency, I will summarize the efforts for both A and B and report back to the SNW participants.

Data Transfer - UFA Pilot

- NW: No objections, will supply data
- SR: Possibly insufficient resources
- SJ: No objections, will supply data
- Ala: No objections, will supply data
- SW: Will transfer PRs, not data strings
- SF: No objections, will supply data
- USGS: Most data in other databases
- Other SNW organizations
Possibly insufficient resources

Closing Issues (RC)

- Discussion if needed
- Action Items
- Next Meeting
 - **Wednesday, Feb. 6 from 1:00 – 3:00 PM**
- Adjourn