

Salinity Network meeting
10:00 – 12:00 Noon
December 14, 2011
[Rick Copeland (FDEP)]

Welcome
and
Introduction

Outline

- I. Introduction (RC)
- II. Review of October Meeting (RC)
- III. Monitoring Sites (RC)
- IV. SWFWMD Coastal Mon. Net. (DD)
- V. Use of LFA and Prod. Wells (DD)
- VI. Ground Water Watch (SC)
- VII. Issues of Concern
 - Data Transfer (SC)
 - Varying Sampling Methodologies (SC)
 - 3-D Basins (RD)
 - Incorporation of Salin. Monitoring into Surface Water (SM)
 - Development of a Framework Document (RC)
- VIII. Development of an Index (RC)
- IX. Discussion (RC)
- X. Action Items and Adjournment (RC)



II. Review of 10/26/2011 Meeting Reasons for Network

Since 1998 GW in Florida

Levels & spring flows declined

Quality

e.g. - Na, Cl, SC increased

Scale of Problem - WMD and Statewide

Due to:

Decreases in rainfall and recharge

Increases in GW withdrawals?

Sea level rise?

Draft – Goals

- Get GW programs to participate in FWRMC activities and work towards a common goal
- Provide GW data and information on a statewide to local scale
- Define **status** and trends (?) for Salinity and GW Levels
- Integrate GW results with other water resource reports
- Other issues as needed

Salinity Network

- Wells and Springs
- Existing Sampling Locations
- No New Stations Required
 - (but can be added if needed)
- Can also include surface water stations as needed

Management and Reporting

- Management - Through FWRMC Guidance
- Cooperative effort of all participating entities
 - Statewide Efforts – Coordinated by FWRMC/FDEP
 - Regional & local scales – Coordinated by FWRMC/Regional Councils/Mon. Entities

Analytes / Indicators

- Field
 - WL, Spring Flow, SC, pH, Temp
- Laboratory?
 - Na, Cl, TDS, SO₄
 - Ca, Mg
- Additional Data (as needed)
 - Rainfall (SE Reg. Climate Center)
 - Air Temp (SE Reg. Climate Center)
 - GW withdrawal (**pumping**) data (where available)
 - Evaporation and **ET** data (where available)

Development of an Index or Indices

- Use of Percentiles for GW Levels
 - October meeting - Had Support
- Index for Salinity?
 - Specific Conductance (SC) or Cl?
- Other analytes?

III. Monitoring Sites

(Nomenclature from FGS Sp. Publ. 28, 1986)

- Surficial Aquifer System (SAS)
 - Sand and Gravel aquifer (S&G)
 - NW Florida
 - Biscayne aquifer (BA)
 - SE Florida
- Intermediate Aquifer System (IAS)
- Floridan Aquifer System (FAS)
 - Upper Floridan aquifer (UFA)
 - Lower Floridan aquifer (LFA)

Monitoring Sites

- NFWWMD (**WL**) Spring flow avail ?
 - $\approx$ 250 wells (**FAS**; **S&G** in W; some IAS)
 - Good Distribution (FAS, S&G)
 - Freq (Q); Begin Date (obtainable)
- NFWWMD (**Sal**) (Includes **SC**)
 - 12 wells (FAS?), some springs (FAS)
 - Wells along coast
 - Freq (Q); Begin Date (obtainable)

Monitoring Sites

- SRWMD (**WL**) (Spring Flow avail)
 - $\approx$ 300 wells (mostly **FAS**) and springs
 - Good Distribution
 - Freq (Con, M, Q); Begin Date (Many since 2000)
- SRWMD (**Sal**) (Includes Cl, **SC**)
 - 70-80 wells (**FAS**) and springs
 - Good Distribution
 - Freq (Q, A); Begin Date (Many since 2000)

Monitoring Sites

- SJRWMD (**WL**) (Spring Flow avail)
 - > 700 wells (FAS, IAS, SAS)
 - Good Distribution
 - Freq (**Con**, M, Q); Begin Date (obtainable)
- SJRWMD (**Sal**) (includes Cl, **SC**)
 - >300 wells (**FAS**; Some IAS, Some SAS)
 - Good Distribution, Spring Data avail
 - Freq (1/6 mo, A); Begin Date (obtainable)

Monitoring Sites

- SWFWMD (**WL**) (Spring Flow avail)
 - $\approx$ 1400 wells, (FAS, IAS, SAS); 20 spgs (FAS)
 - Good Distribution
 - Freq (**Con**, M, Q)?; Begin Date (many since 1990)
- SWFWMD (**Sal**) (Includes Cl, **SC**)
 - $\approx$ 400 wells (**UFA**, IAS, SAS (few)); 70 springs
 - Good Distribution FAS, IAS
 - Freq(1/4 mo, A); Begin Date (many since 1990)

Monitoring Sites

- SFWMD (WL)
 - > 500 wells (FAS, IAS, SAS)
 - Good Distribution
 - Freq (Con, M); Begin date (many 1990s)
- SFWMD (Sal) (Includes Cl, SC)
 - 42 (UFA), Good Dist; Freq (A); Begin date?
- SFWMD (Salt/CUP) (Includes Cl, SC)
 - Water Utilities; Freq (Q)
 - $\approx$ 2400 wells (Aq. Sys. ?)

Monitoring Sites

- USGS (WL)
 - Many wells included in WMD summary
 - $\approx$ 100 wells in GA, (mostly FAS)
 - Freq (Con, Q); Begin date?
- USGS (Sal)
 - Many well included in WMD summary

Monitoring Sites

- GW Level Summary (Statewide)
 - > 3500 wells; Mostly FAS
 - Distribution
 - FAS (good)
 - IAS (generally weak)
 - S&G in NW, SE FL (good), but often weak in other areas
 - Freq (Con, M, Q)
 - Begin Date (Many since 2000, Since 1990?)

Monitoring Sites

- Salinity (WQ) Summary (Cl, SC)
 - Hundreds of wells; FAS, IAS, SAS
 - Distribution
 - FAS (good)
 - IAS (generally weak)
 - SAS in SE FL (good)
 - Freq (Q, 1/6 mo, A)
 - Begin Date (highly variable)



IV & V. Dave DeWitt (SWFWMD)

- IV. Coastal Monitoring Network
- V. Use of LFA Wells
- V. Use of Production Wells

VI. Scott Prinos (USGS)

- VI. Ground Water Watch (SC)
- VII. Issues of Concern
 - Data Transfer (SC)
 - Varying Sampling Methodologies (SC)

VII. Rodney DeHan (FGS)

- 3-D Basins



VII. Susan Markley (Miami-Dade)

- Incorporation of Salinity Monitoring into Surface Water



VIII. Development of a Framework Document

- (EPA – 10 Steps)
 - Program Strategy
 - Monitoring Objectives
 - Monitoring Design
 - Indicators
 - Quality Assurance
 - Data management
 - Data Analysis and Assessment
 - Reporting
 - Programmatic Evaluation
 - General Support and Infrastructure Planning



VIII. Development of an Index

- Envision an index or indices that:
 - Uses uniform methodology (to calculate)
 - Can be used at a variety of scales
 - Statewide, WMD, County, Site Specific

Development of an Index

- Can be used by aquifer or Aq. System
- Recognized by Public, Policy Makers, and Scientists
- A tool to be used by Policy Makers

Development of an Index

- One index versus multiple indices
- Use of Percentiles for WL; for SC or CI?
- Do we need a subgroup?

Terms

- **Analyte** (Chem.) – A component...a substance or...constituent that is of interest in an analytical procedure
- **Parameter** (Chem.) – Used to describe a discrete chem. or microbiological entity which can be assigned a value which is commonly a concentration
- **Indicator** (Environ. Health) – Pressure, conditions, response
- **Index** (Economics) – A single number calculated from an array of ...quantities

Current Potential to Develop a GWL Index

S&G = Sand and Gravel aquifer

NS – Not used significantly, relative to the FAS

	SAS	IAS	FAS
NWFWMD	S&G - Yes	? because NS	Yes
SRWMD	? because NS	? because NS	Yes
SJRWMD	Yes	?	Yes
SWFWMD	Yes	?	Yes
SFWMD	Yes	?	Yes

Current Potential to Develop a Sal Index

NA = Not Applicable

NS – Not used significantly, relative to the FAS

Sal Net Index probably based on SC

	SAS	IAS	FAS
NFWWMD	NA	NA	Coastal
SRWMD	? because NS	? because NS	Yes
SJRWMD	?	?	Yes
SWFWMD	?	Yes (in places)	Yes
SFWMD	Yes (SE FL)	?	Yes

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- IX. Discussion
 - X. Action Items
 - X. Next Meeting
 - X. Adjourn