

Southwest Florida Water Management District Aquifer Resource Indicator

FWRMC Salinity Network Work Group
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Hydrologic Data Manager



Background and Purpose

- ❖ Hydrologic Data Section, Data Collection Bureau
 - ❖ Groundwater and surface water levels, rainfall, evapotranspiration
- ❖ Hydrologic conditions monitoring and reporting
 - ❖ Need to place current conditions into context
 - ❖ Began statistical comparison of indicators in 1988

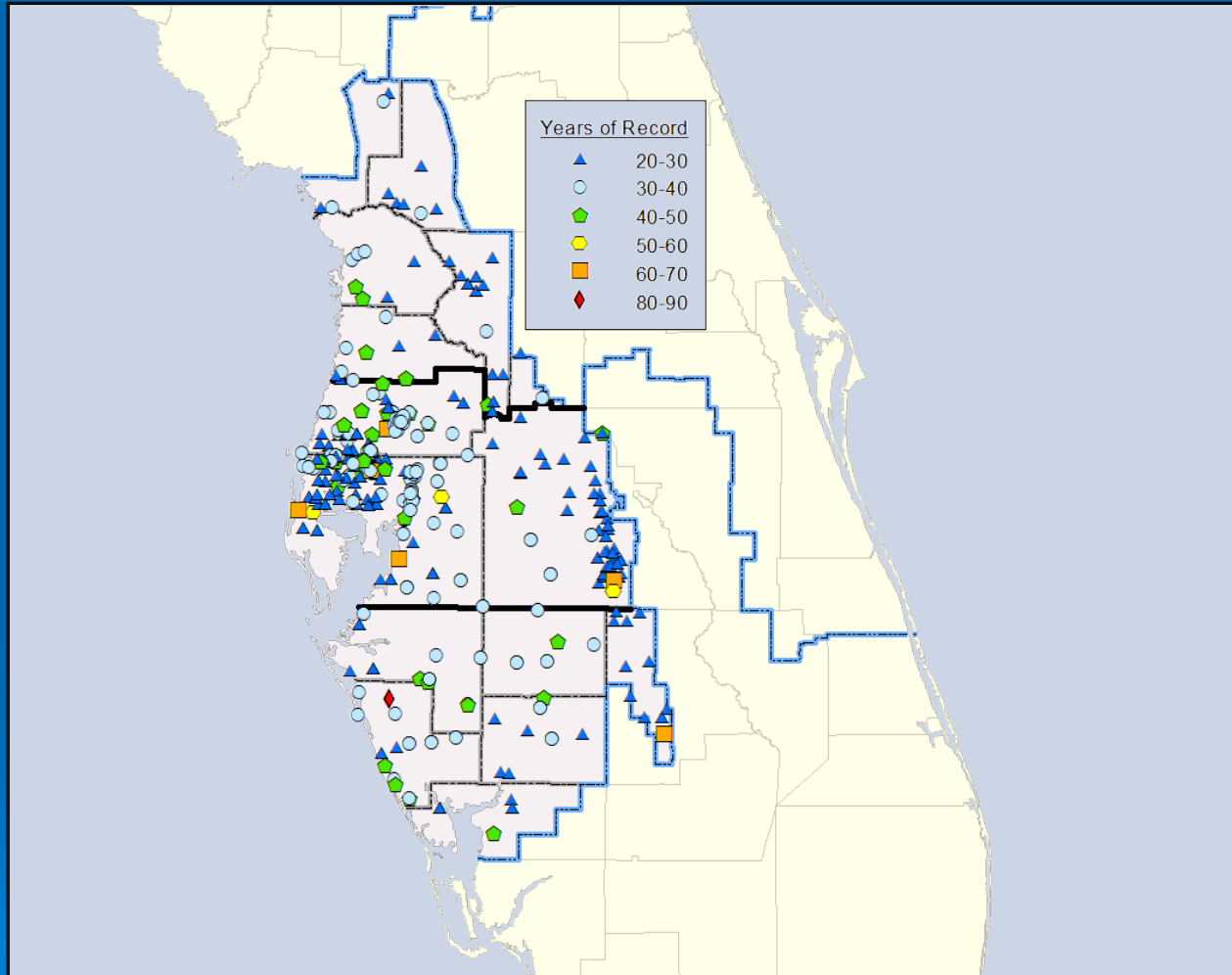
Groundwater Monitoring

- ❖ Extensive monitoring network
 - ❖ Floridan / Intermediate / surficial aquifers
 - ❖ 50-year relationship with USGS
 - ❖ Continuous (hourly) recorders
 - ❖ Near real time monitoring

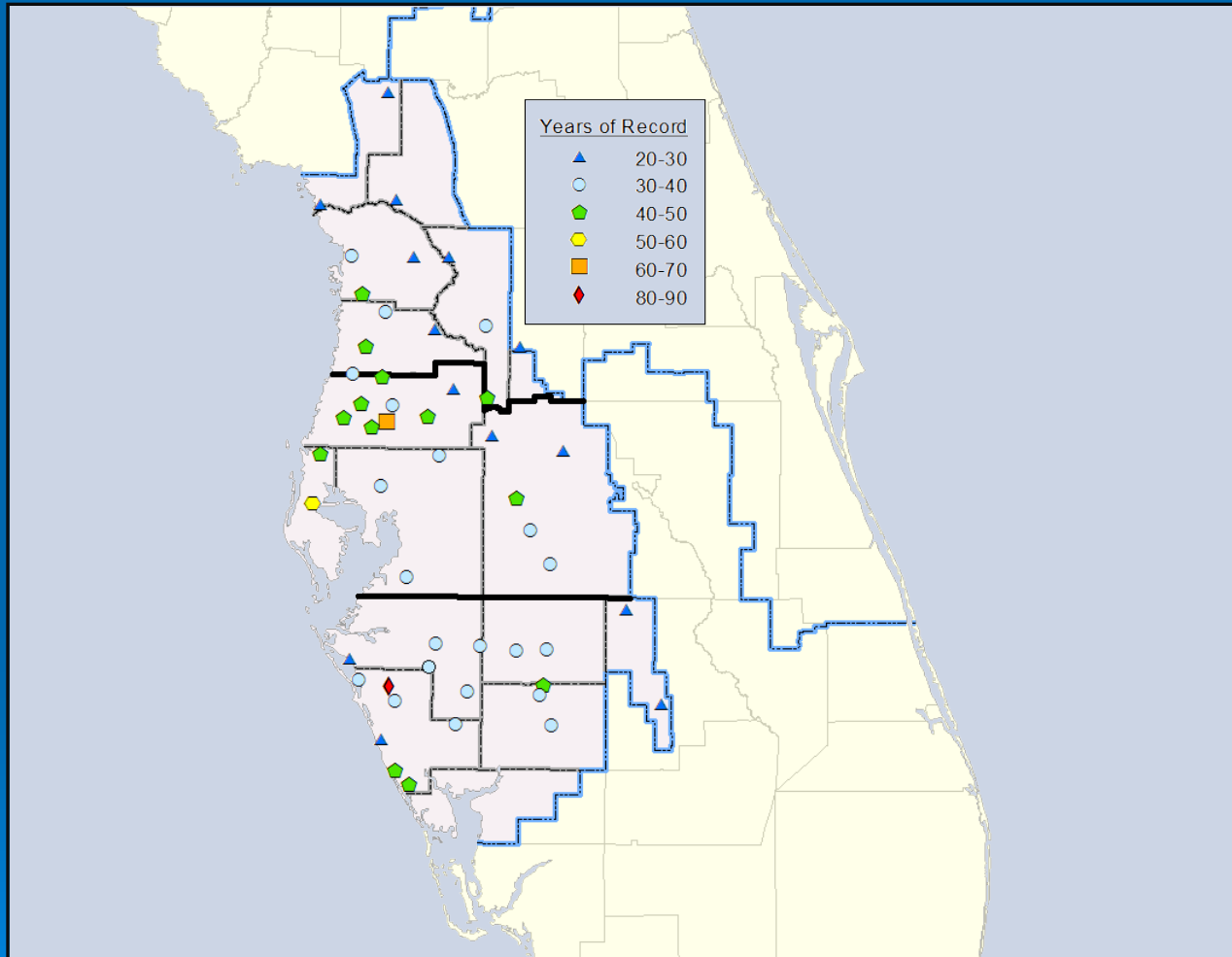
Procedure: Selection of Wells

- ❖ Sufficient period of record
- ❖ Known well construction
- ❖ Preference for Floridan aquifer
- ❖ Even geographic distribution

Wells Meeting Criteria



Selected Indicator Wells



Procedure: Creation of Dataset

- ❖ Use Daily Maximum elevations
- ❖ Daily instantaneous elevations
- ❖ In-fill data gaps < 60 days
- ❖ Data > 60 days considered missing

Procedure: Calculate Percentiles

- ❖ Weekly percentile tables
- ❖ Rankings rounded up to nearest percent
- ❖ When single value is represented by multiple percentiles, assign maximum percentile value

Procedure: Weekly Reporting

- ❖ SAS routine grabs data from SCADA system
- ❖ Individual well elevations compared against stats for the same week
- ❖ Reports generated summarizing individual percentiles and regional mean percentiles

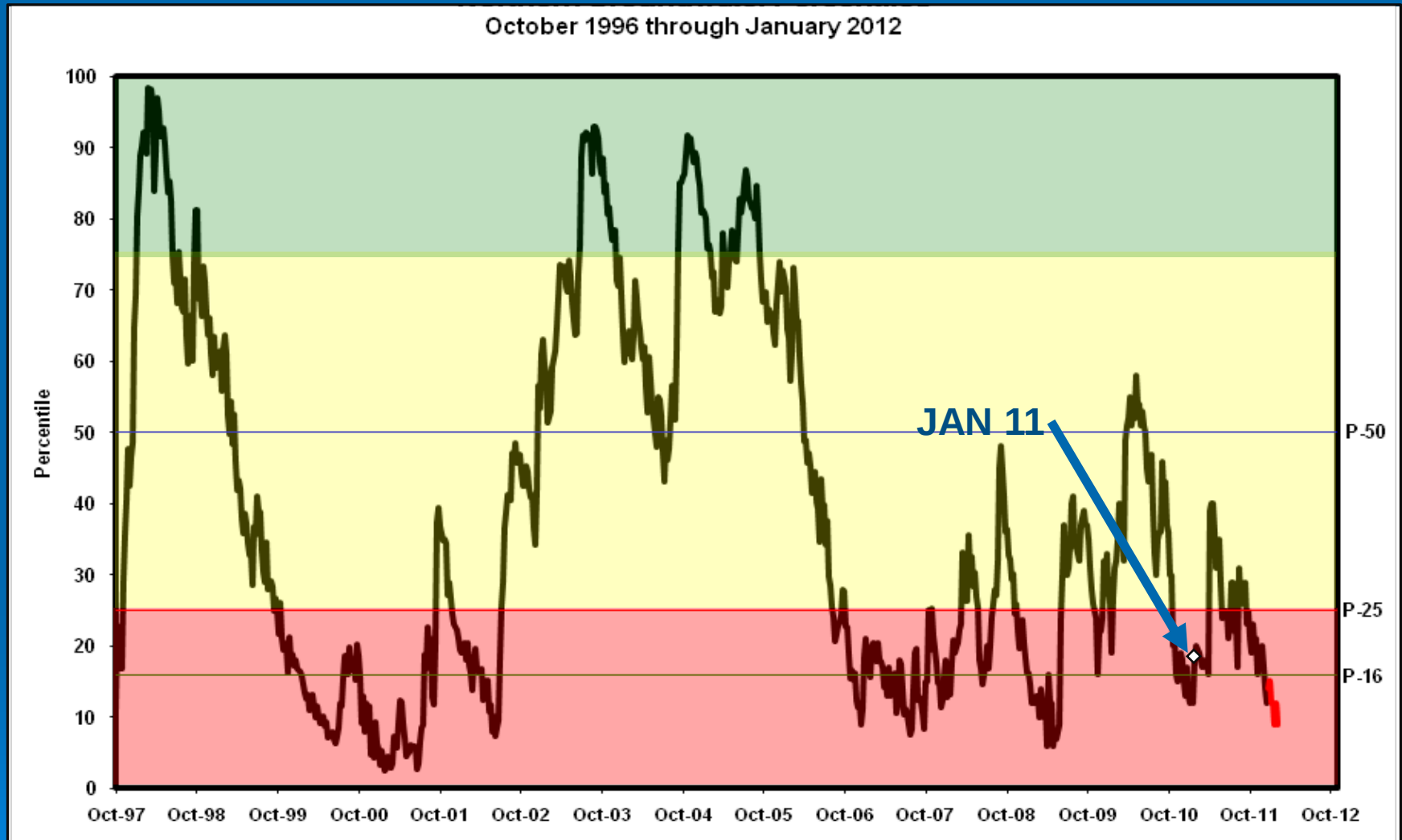
AQUIFER RESOURCE INDICATOR - - 28NOV2011 (week 48)

SUMMARY

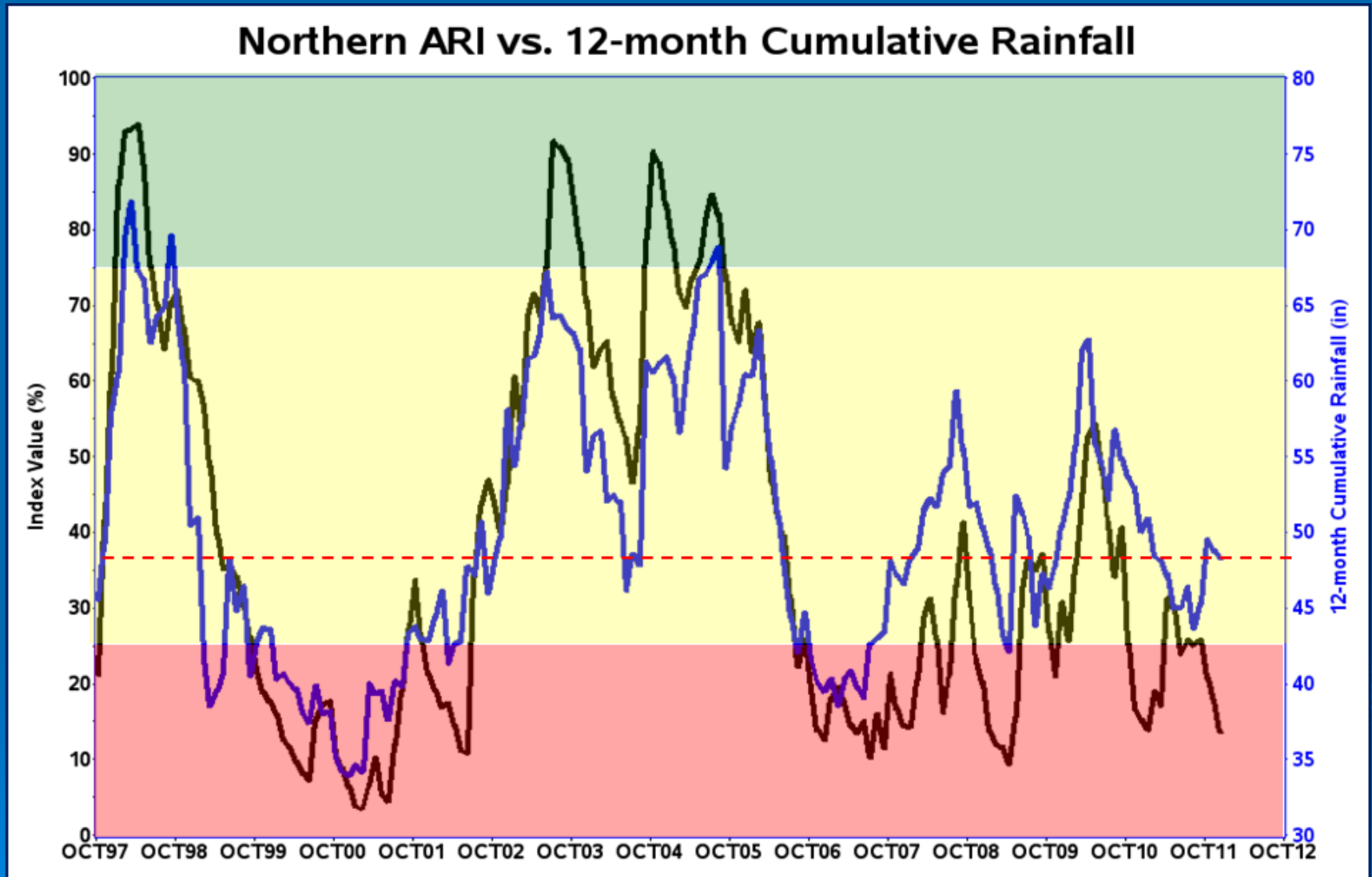
Region	Mean Elevation (feet)	Relation to POR Median (feet)	Relation to 25th Percentile (feet)	Mean Percentile
Northern Counties	36.49	-1.81	-0.39	20%
Central Counties	56.53	0.20	2.81	52%
Southern Counties	30.63	-1.59	1.32	36%

Site Name	Site	County	Elevation (feet)	POR 25th Percentile	POR Median	Relation to 25th Percentile (feet)	Well Percentile
NORTHERN COUNTIES							
Chassahowitzka 1 Deep	21035	Citrus	6.12	6.40	6.88	-0.28	16%
Inverness Dot Fldn	23485	Citrus	25.66	28.80	30.15	-3.14	7%
ROMP Tr 21-2 Ocala/Avon Pk	20062	Citrus	1.94	1.49	1.78	0.45	66%
ROMP 103 Suwannee/Ocala	23534	Hernando	38.16	39.07	41.29	-0.91	16%
ROMP 107 Ocala/Avon Park	20727	Hernando	11.35	11.96	13.49	-0.61	19%
ROMP 97 Avon Park	20841	Hernando	15.96	16.70	18.73	-0.74	16%
Weeki Wachee Deep	20584	Hernando	14.59	16.07	18.07	-1.48	9%
Mascotte Deep	26390	Lake	98.34	99.11	99.94	-0.77	10%
ROMP 134 Ocala/Avon Park	22929	Levy	40.40	45.12	46.86	-4.72	4%
ROMP Tr 124 Avon Park	22964	Levy	2.50	2.39	2.72	0.11	34%
CE 14 Dunnellon Deep	23020	Marion	34.71	39.25	40.93	-4.54	1%
ROMP 89 Ocala	17590	Sumter	91.45	89.19	90.73	2.26	69%
Sumter 13 JC 59 Up Fldn	23032	Sumter	38.73	40.28	41.85	-1.55	9%
Webster City Fldn	23078	Sumter	77.40	80.36	82.61	-2.96	1%
CENTRAL COUNTIES							
Hills State Pk Parking Deep	19461	Hillsborough	39.14	37.47	38.50	1.67	69%
ROMP 50 Avon Park	18211	Hillsborough	4.37	3.38	5.20	0.99	40%
ROMP 66 Tampa	18670	Hillsborough	19.23	16.34	17.80	2.89	83%
Bexley 2 Fldn	21063	Pasco	61.83	60.16	61.03	1.67	77%
Lykes Pasco Fldn	23207	Pasco	66.38	63.76	65.33	2.62	60%
Masaryktown Deep	20541	Pasco	26.99	31.31	35.27	-4.32	8%
Moon Lake Deep	20339	Pasco	30.10	29.77	30.33	0.33	39%

Groundwater: Northern Counties



GW and Rainfall Correlation



Limitations to Methodology

- ❖ Varying periods-of-record
 - ❖ Longer record, wider range of conditions, but less frequent readings
 - ❖ Shorter record, daily to hourly readings

Limitations to Methodology

- ❖ Not adjusted for long-term trends
 - ❖ Longer period affected by regional water use
 - ❖ Shorter period affected by drought and flood cycles

Questions?