

# Report on GMA-12 Consultants Draft Modeling Scenarios 1 and 2

February 10, 2015

POSGCD DFC Committee Meeting

Milam, TX



# Modeling Scenarios 1 and 2

- Updated District pumping from 1999 to 2010 base on best available information
- Scenario 1 – assume permits are fully used by 2015
- Scenario 2 – best estimate of future pumping. Assume gradual increases for most municipal supplies

# Current MAGs

District	Brazos River Alluvium	Carrizo	Calvert Bluff	Simsboro	Hooper	Queen City	Sparta	Yegua-Jackson	Total
Brazos Valley	-	5,496	1,755	96,185	316	529	7,923	7,071	119,275
Fayette County	-	1,000	-	-	-	570	3,729	5,762	11,061
Lost Pines	-	12,052	3,985	37,249	2,592	1,133	1,877	-	58,888
Mid-East Texas	-	11,088	3,912	7,170	827	974	3,334	1,122	28,427
Post Oak Savannah	25,138	7,059	1,038	48,501	4,422	502	6,734	12,923	106,377
<b>GMA 12</b>	<b>-</b>	<b>36,695</b>	<b>10,690</b>	<b>189,105</b>	<b>8,157</b>	<b>3,708</b>	<b>23,597</b>	<b>26,878</b>	<b>323,968</b>

Image from LBG presentation to GMA 12 on Dec 4, 2014

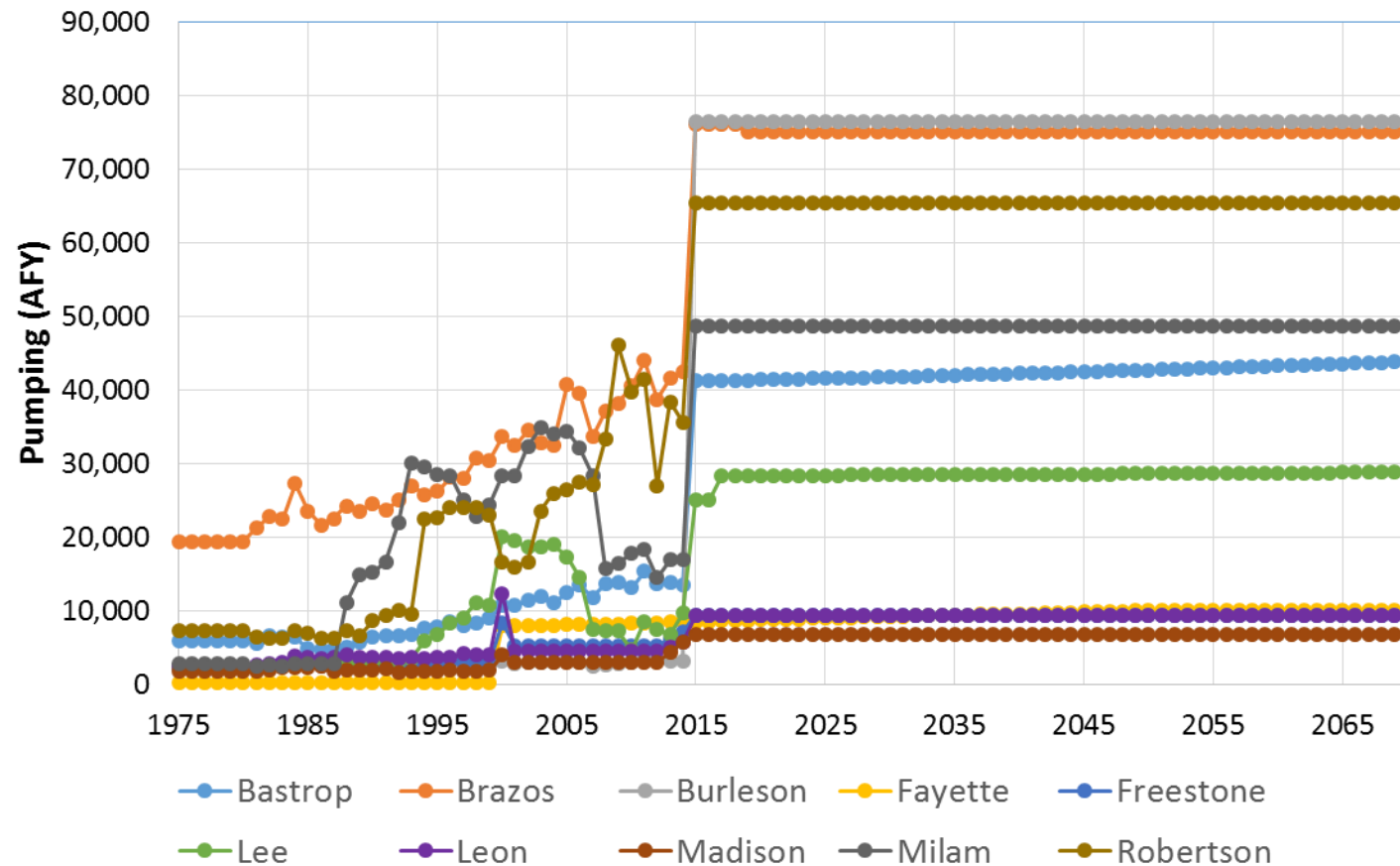
# Predictive Scenario 1 Pumping

District	Carrizo	Calvert Bluff	Simsboro	Hooper	Queen City	Sparta	Total
Brazos Valley	4,748	3,184	120,252	1,831	1,157	9,228	140,400
Fayette County	1,000	-	-	-	1,857	7,249	10,107
Lost Pines	17,091	4,056	46,621	673	2,648	872	71,962
Mid-East Texas	2,852	6,345	4,380	5,550	1,249	5,112	25,488
Post Oak Savannah	17,841	1,486	98,079	5,321	385	1,862	124,974
<b>GMA 12</b>	<b>43,533</b>	<b>15,071</b>	<b>269,333</b>	<b>13,375</b>	<b>7,296</b>	<b>24,322</b>	<b>372,931</b>

Image from LBG presentation to GMA 12 on Dec 4, 2014

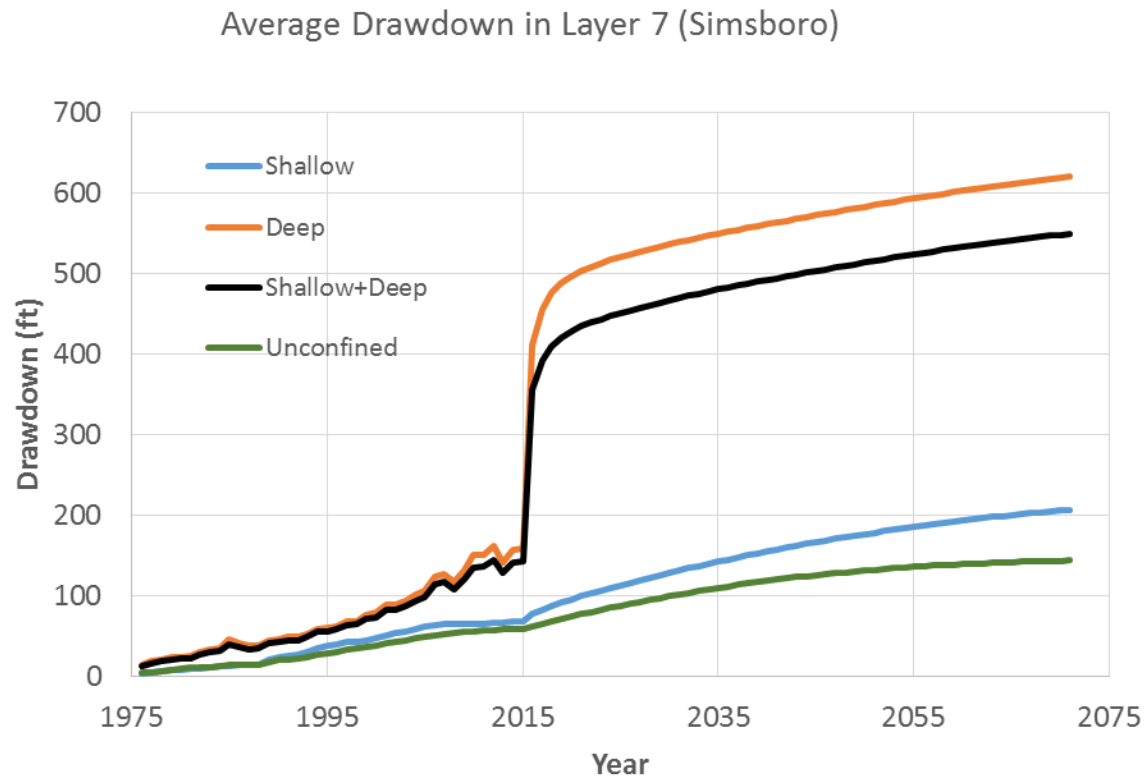
# Pumping Scenario 1

- plot of pumping per county over time



# Scenario 1 Average Predicted Drawdown

## ■ S1 results



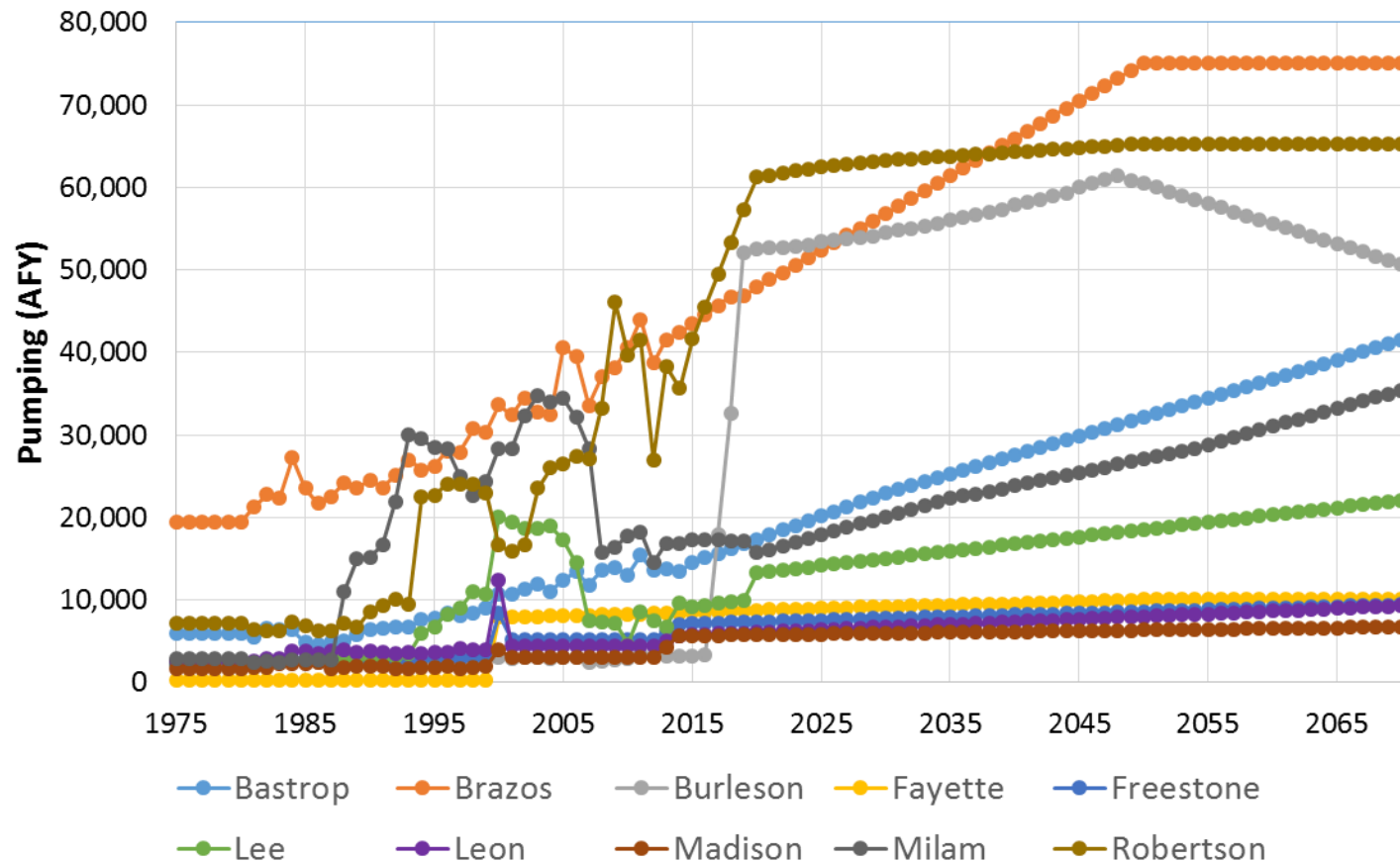
# Predictive Scenario 2 Pumping

District	Carrizo	Calvert Bluff	Simsboro	Hooper	Queen City	Sparta	Total
Brazos Valley	4,748	3,184	120,252	1,831	1,157	9,228	140,400
Fayette County	1,000	-	-	-	1,857	7,249	10,107
Lost Pines	11,509	3,906	45,213	673	1,084	565	62,949
Mid-East Texas	2,851	6,305	4,342	5,527	1,245	5,093	25,363
Post Oak Savannah	9,604	575	70,926	3,059	490	1,577	86,231
<b>GMA 12</b>	<b>29,712</b>	<b>13,970</b>	<b>240,734</b>	<b>11,090</b>	<b>5,833</b>	<b>23,712</b>	<b>325,051</b>

Image from LBG presentation to GMA 12 on Dec 4, 2014

# Pumping Scenario 2

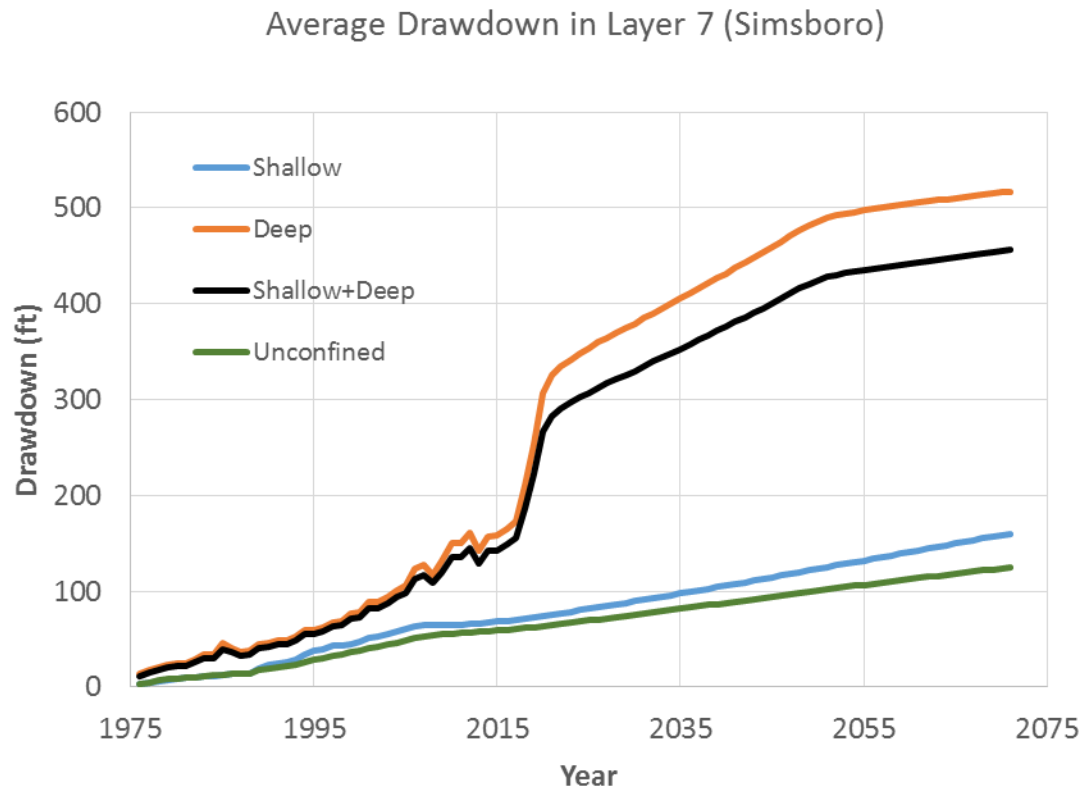
- plot of pumping per county over time





# Scenario 2 Average Predicted Drawdown

## ■ S2 results



# Sparta: Average Drawdown

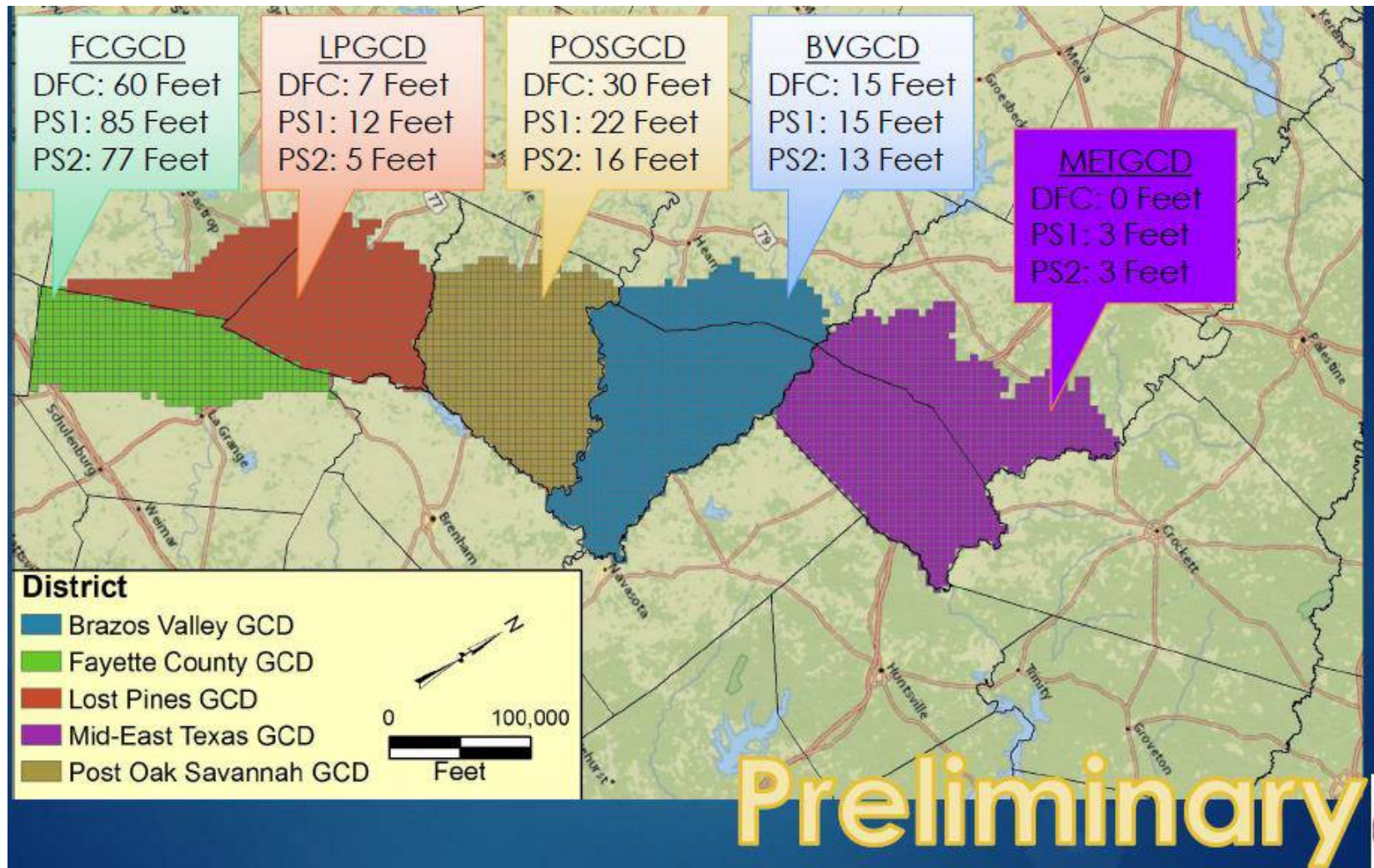


Image from LBG presentation to GMA 12 on Dec 4, 2014



# Queen City: Average Drawdown

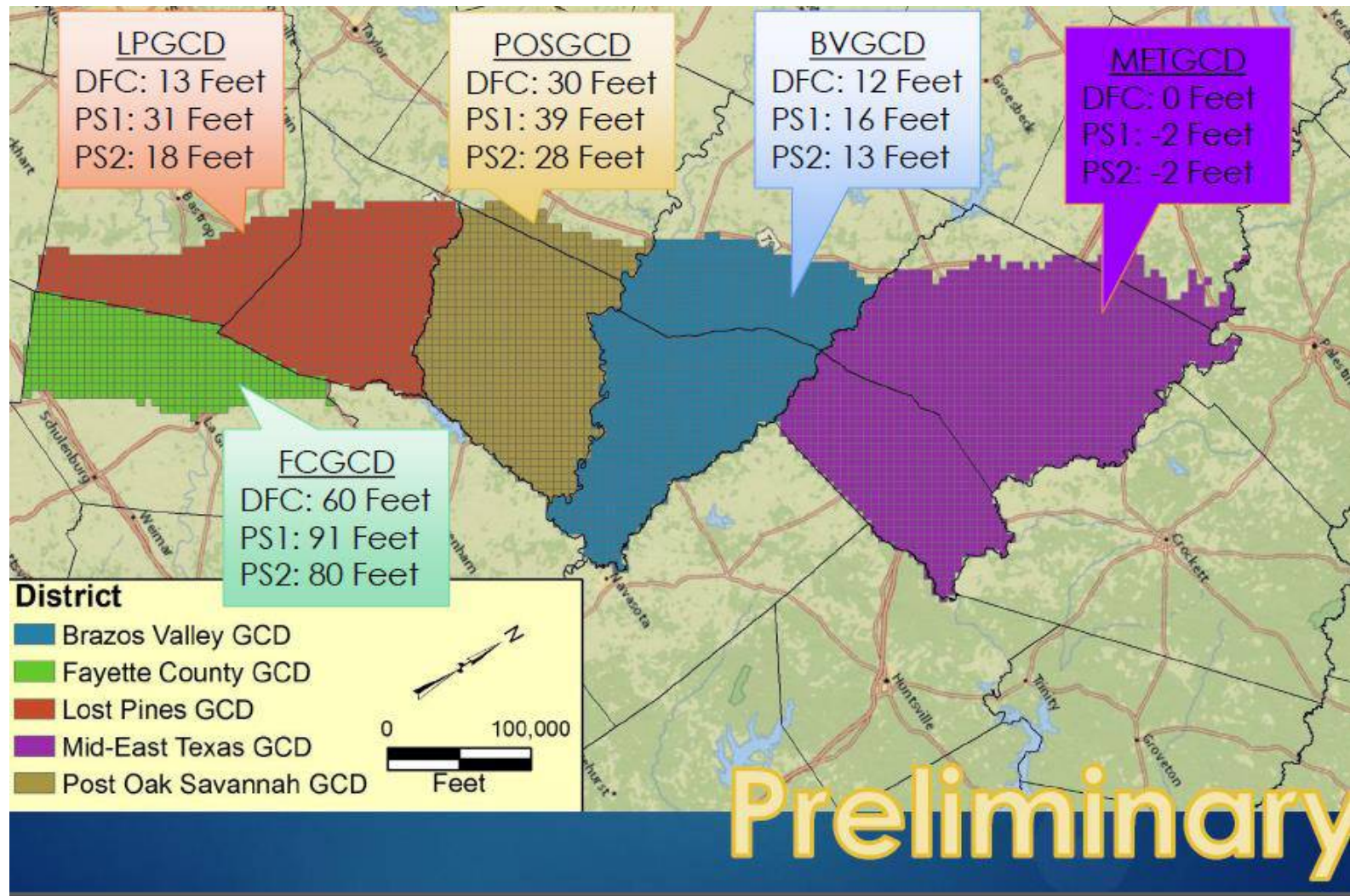


Image from LBG presentation to GMA 12 on Dec 4, 2014

# Carrizo : Average Drawdown

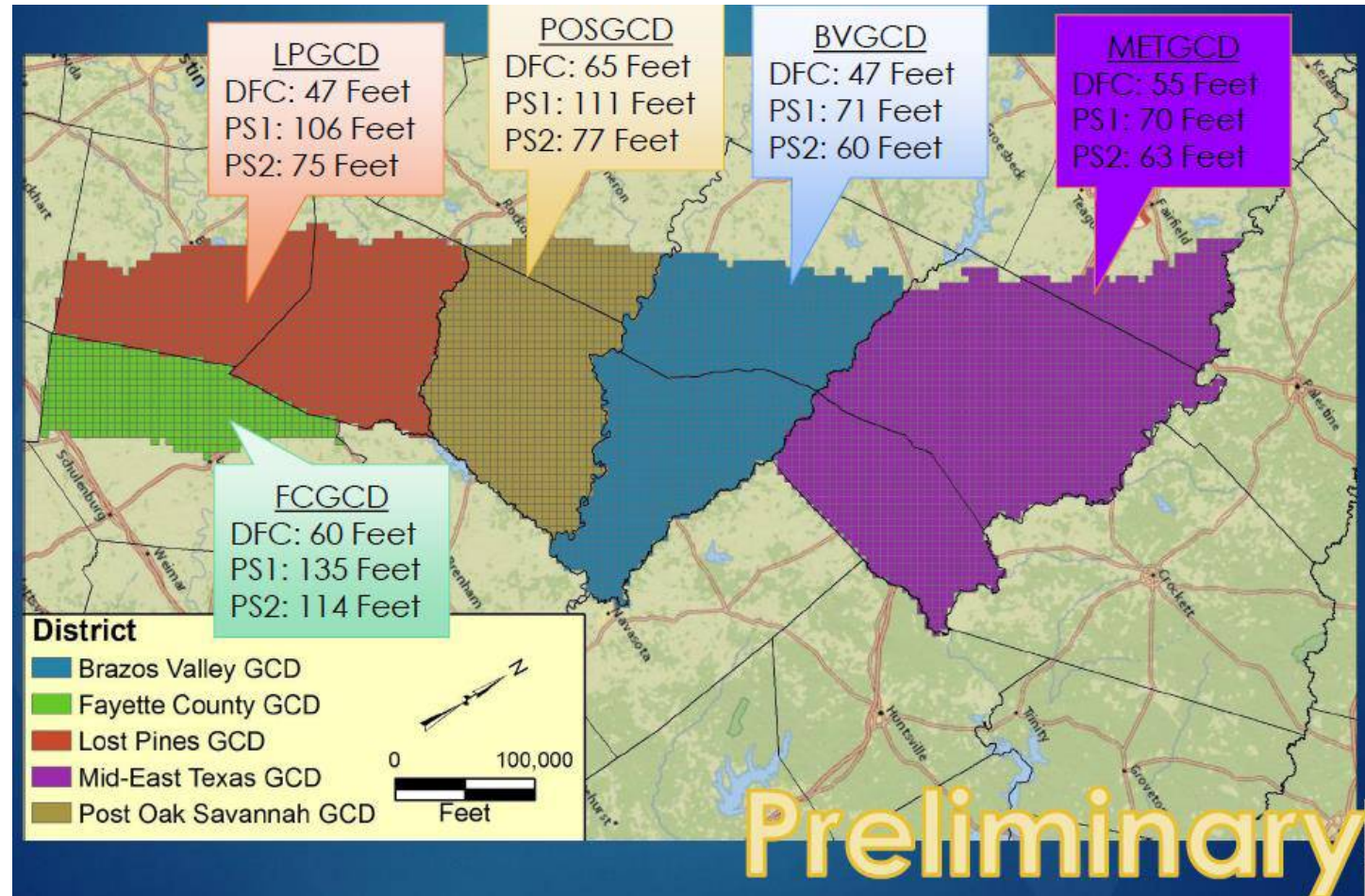


Image from LBG presentation to GMA 15 on Dec 4, 2014



# Simsboro: Average Drawdown

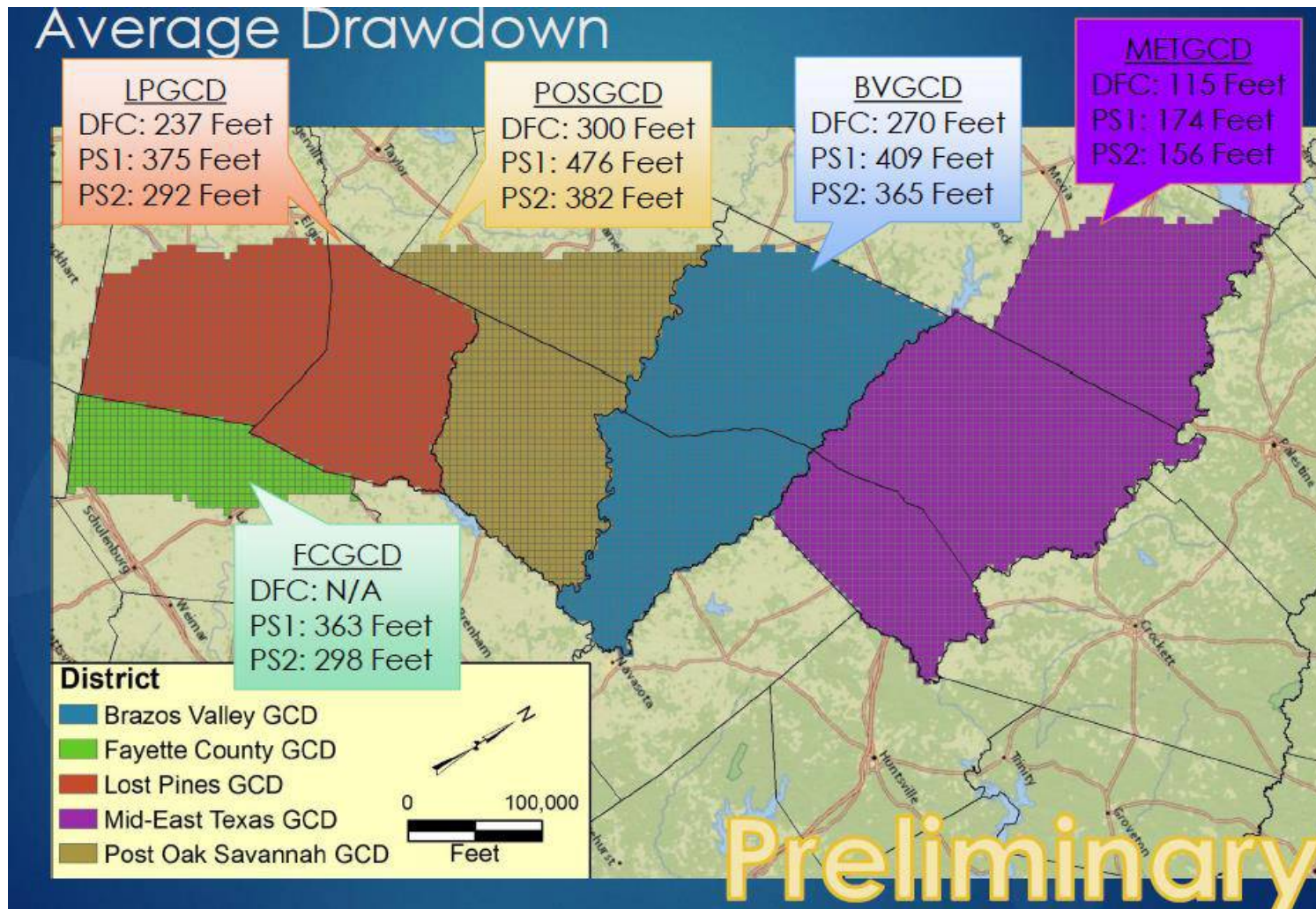


Image from LBG presentation to GMA 12 on Dec 4, 2014

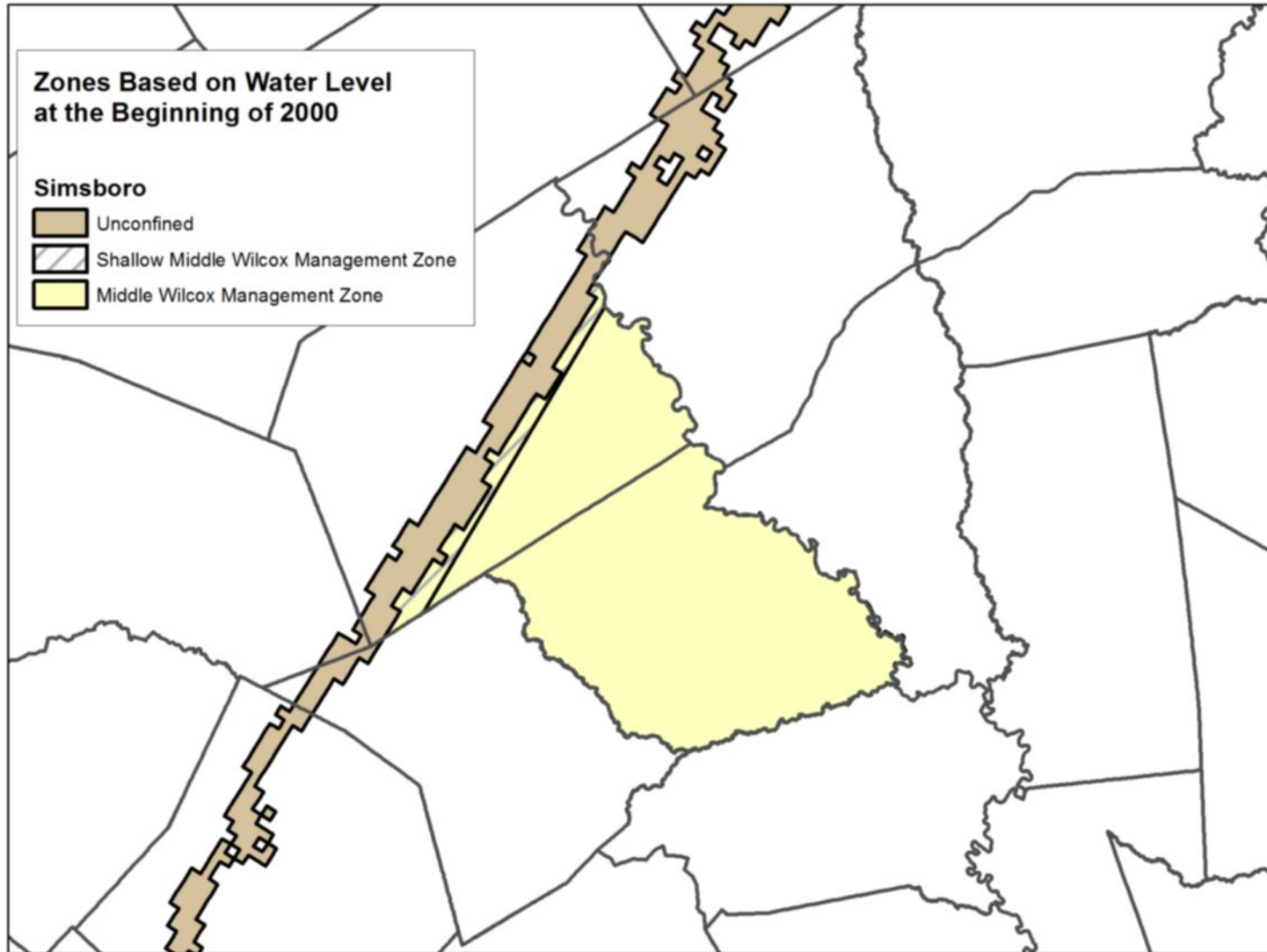
# Sensitivity of Drawdown to Pumping Reductions

- Scenario 1 is the Base Case
- Reduction Occurred at Well Groups for Layers 5, 6, 7, and 8
  - POSGCD
  - POSGCD Deep Management Areas
  - POSGCD Shallow Management Areas
  - Blue Water – Manor
  - Blue Water – SAWS
  - Non POSGCD

# Sensitivity of Drawdown to Pumping Reductions

- Pumping reduction start at 2030
- Pumping reductions modeled:
  - 2%, 3%, and 4% per year

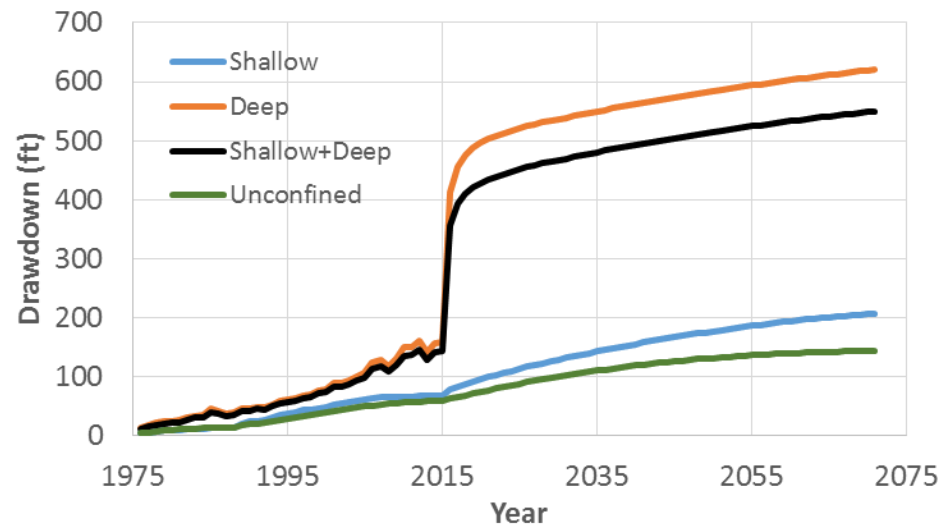
# Simsboro Management Zones



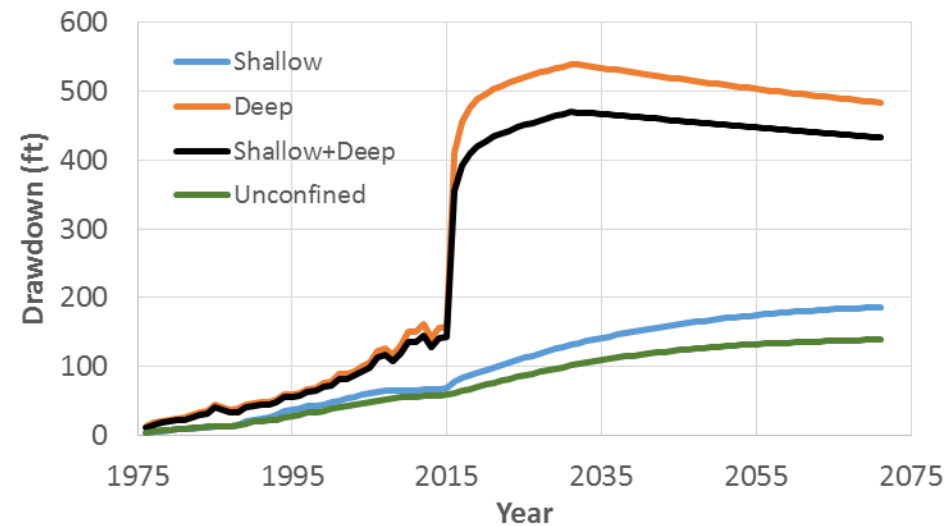


# Results for POSGCD Pumping

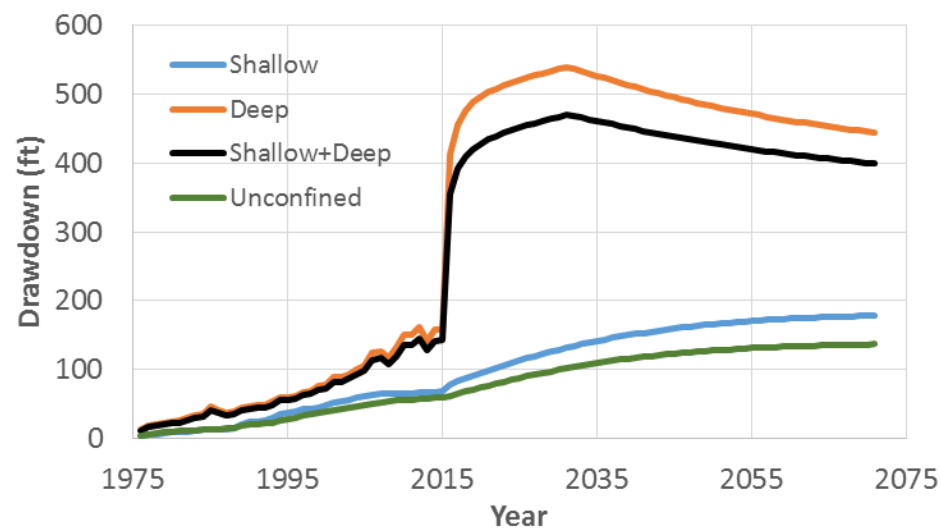
## Scenario 1



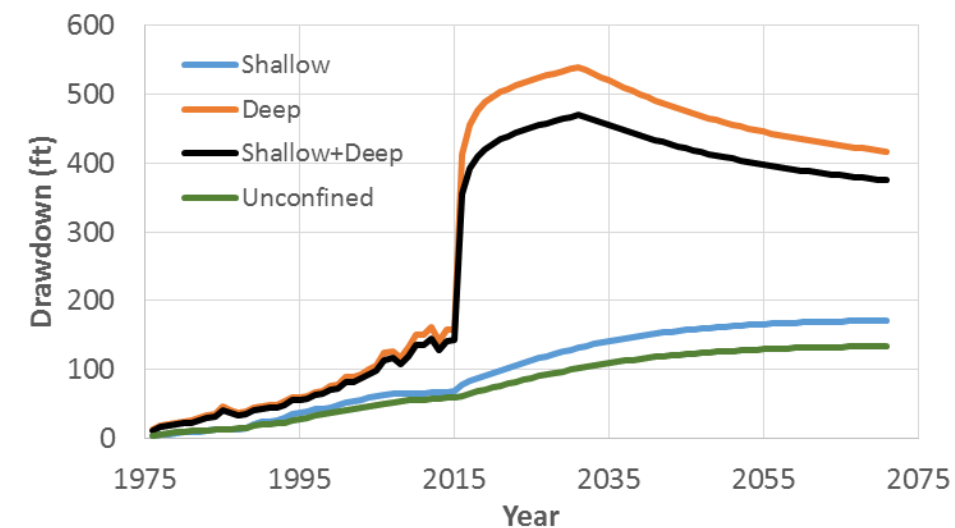
## Pumping Reduction 2%



## Pumping Reduction 3%

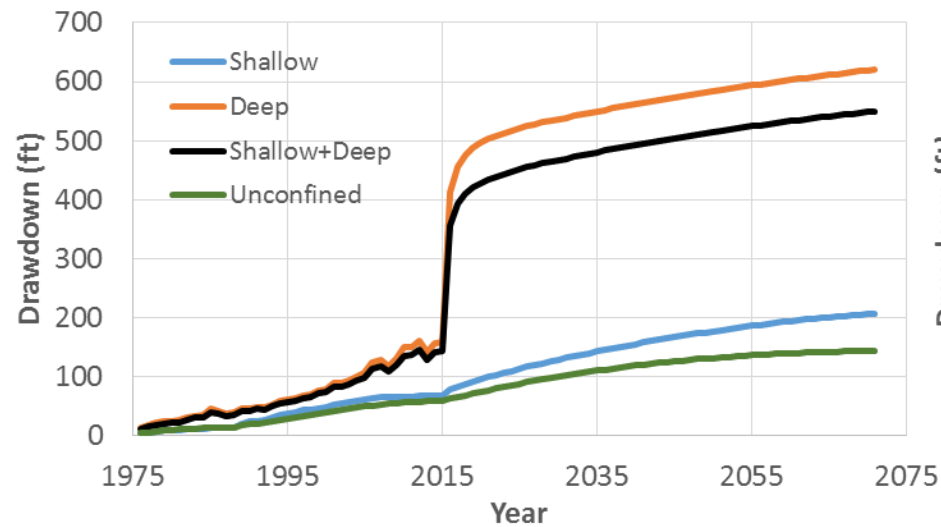


## Pumping Reduction 4%

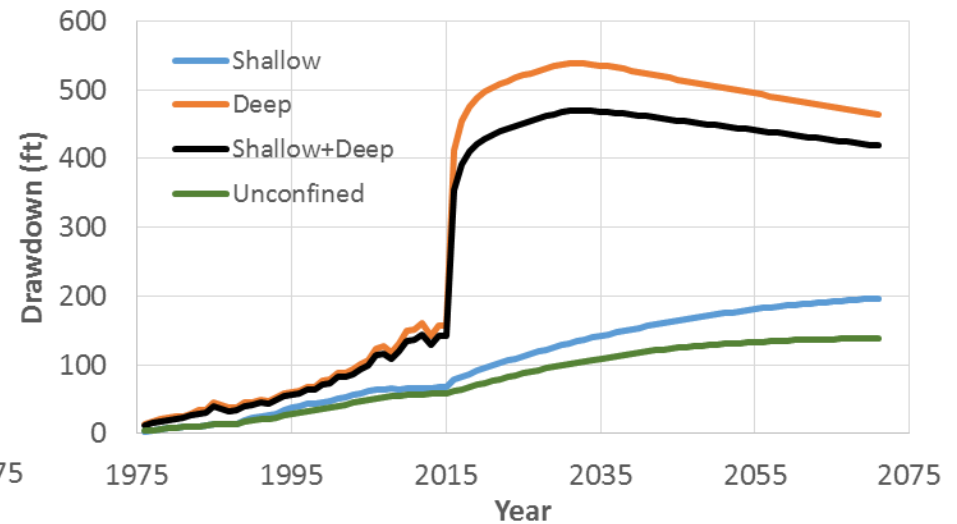


# Results for Non-POSGCD Pumping

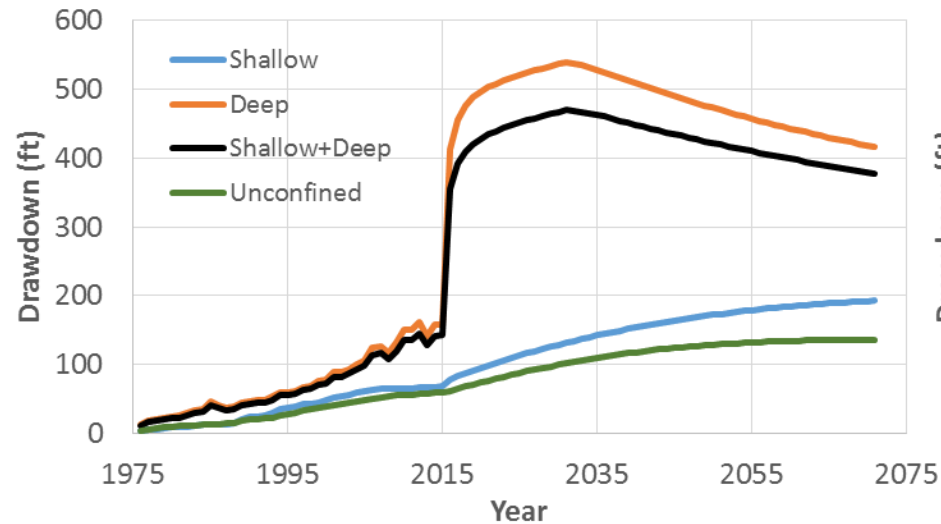
## Scenario 1



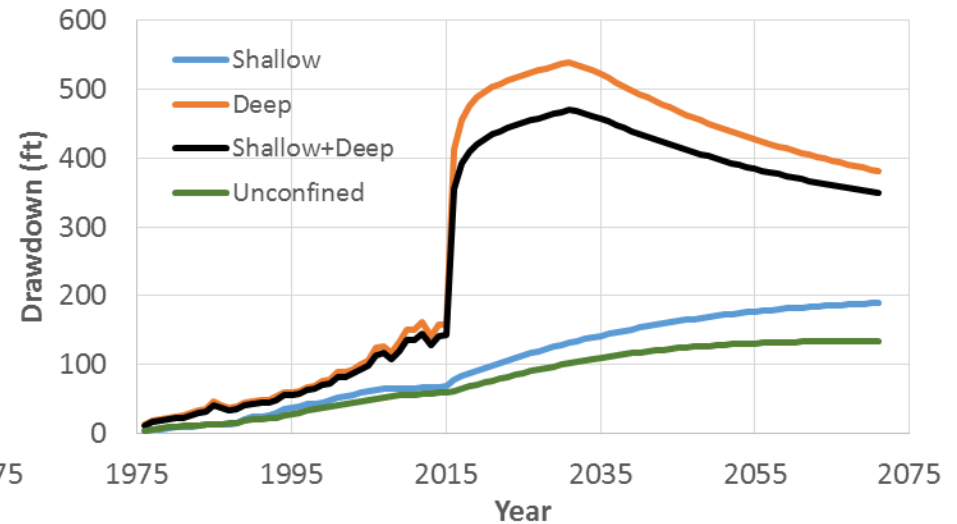
## Pumping Reduction 2%



## Pumping Reduction 3%

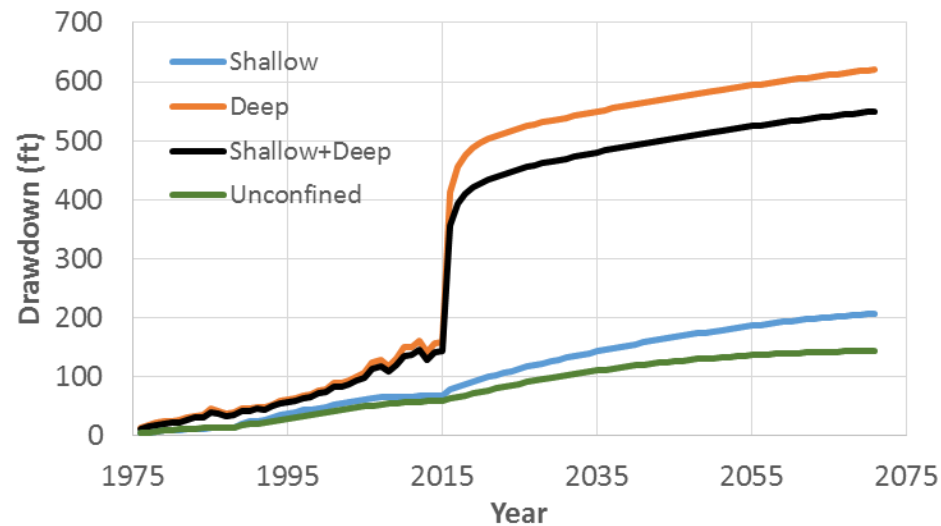


## Pumping Reduction 4%

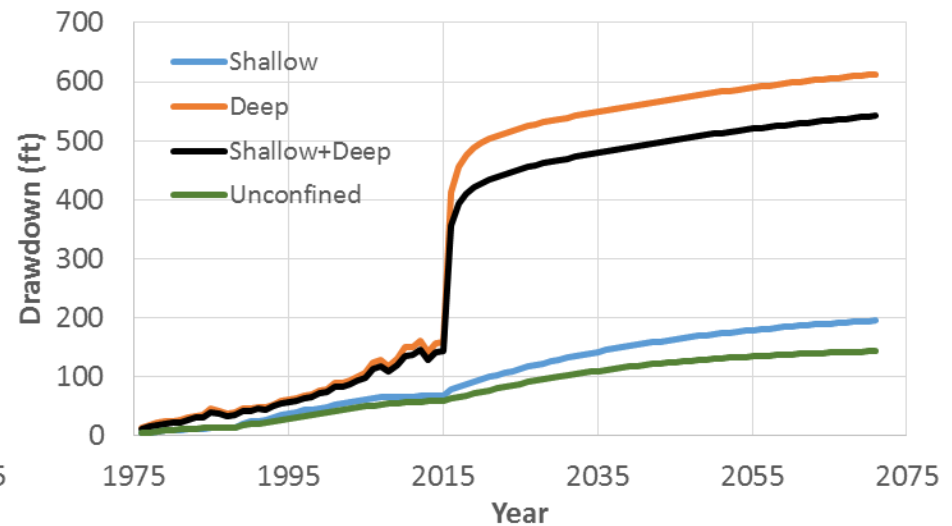


# Results for POSGCD-Shallow Pumping

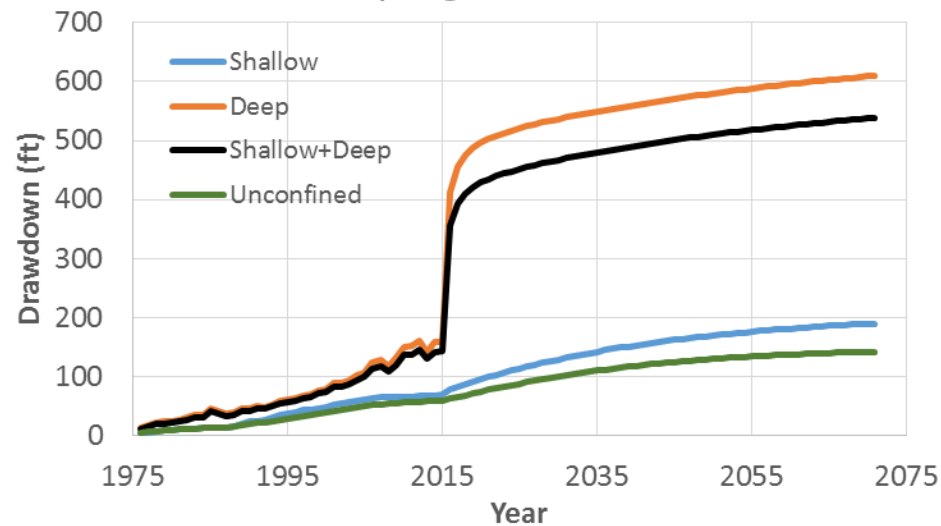
Scenario 1



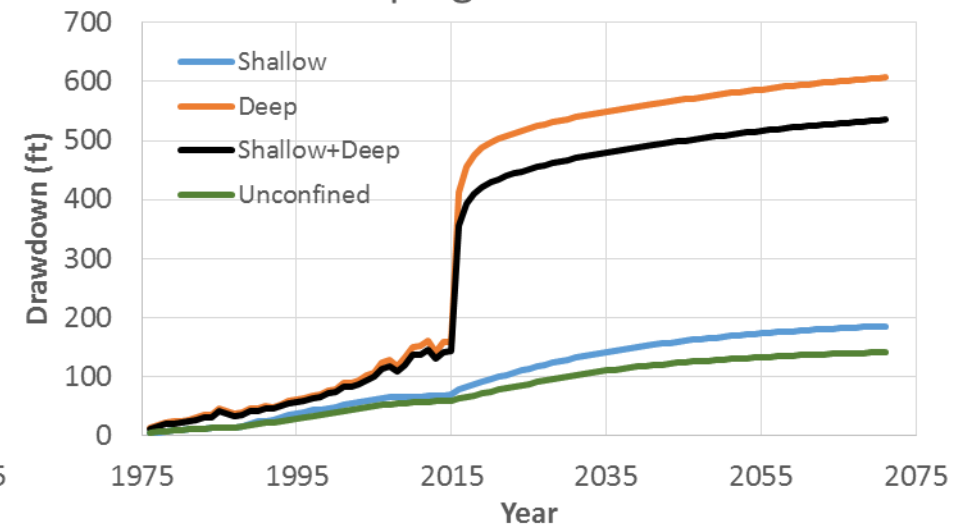
Pumping Reduction 2%



Pumping Reduction 3%

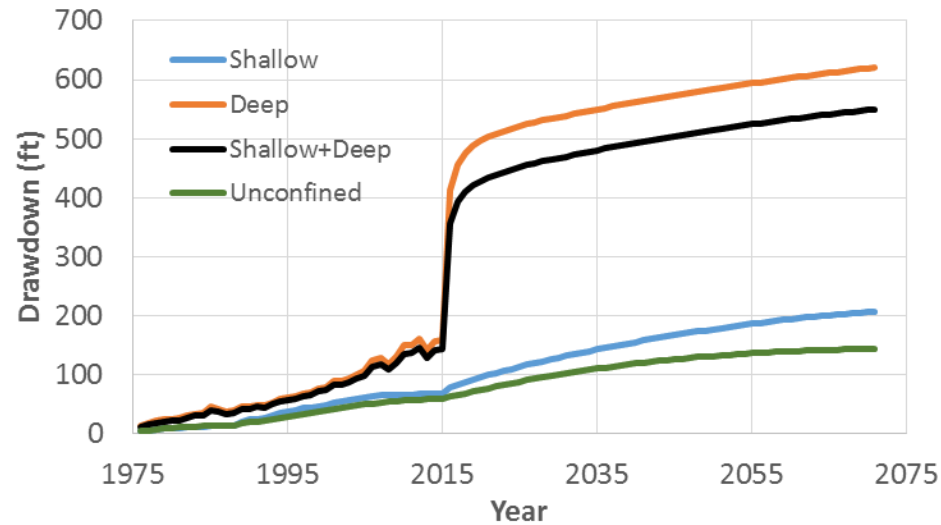


Pumping Reduction 4%

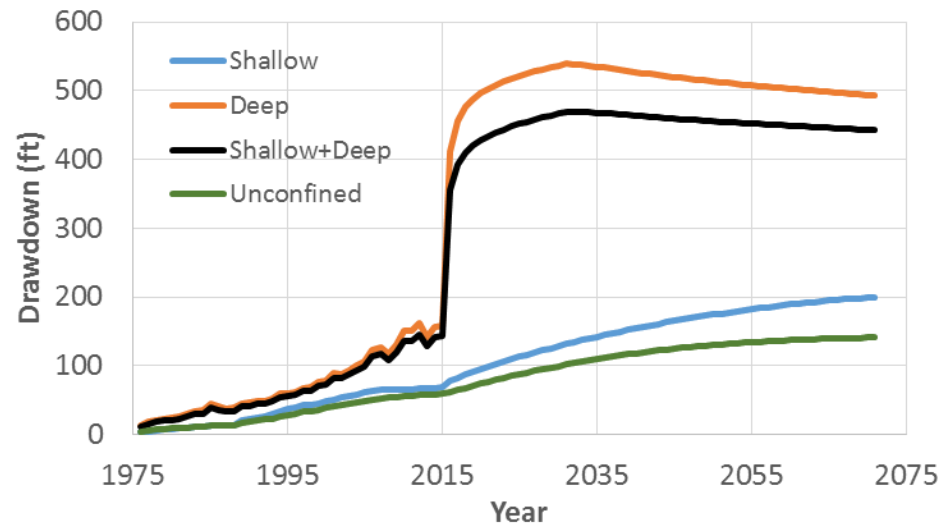


# Results for POSGCD-Deep Pumping

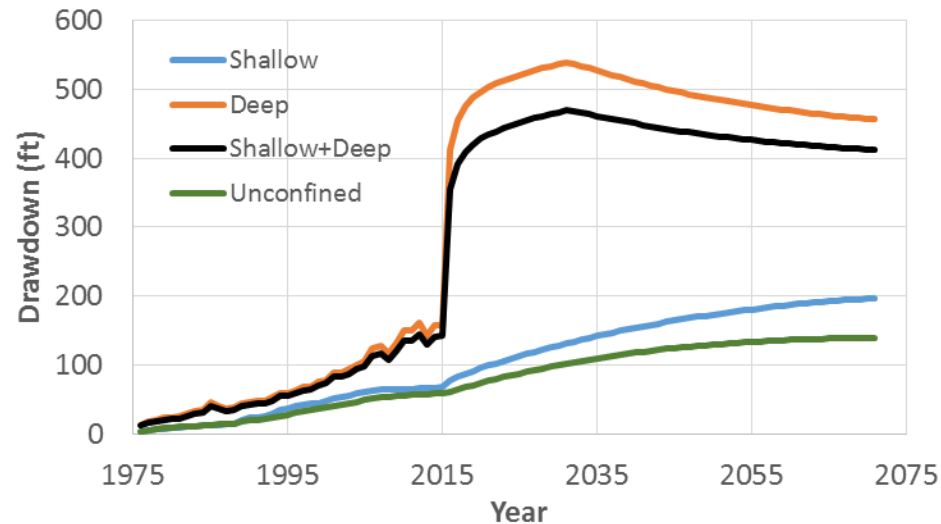
Scenario 1



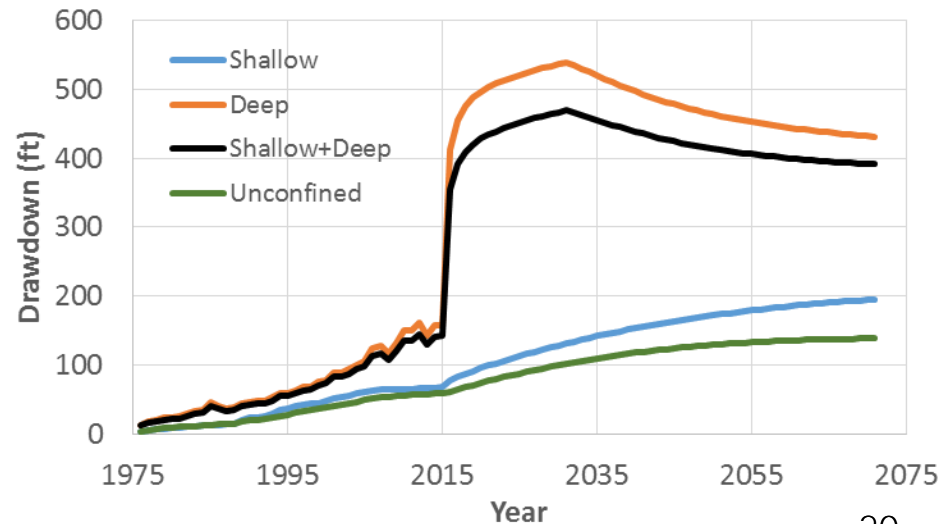
Pumping Reduction 2%



Pumping Reduction 3%

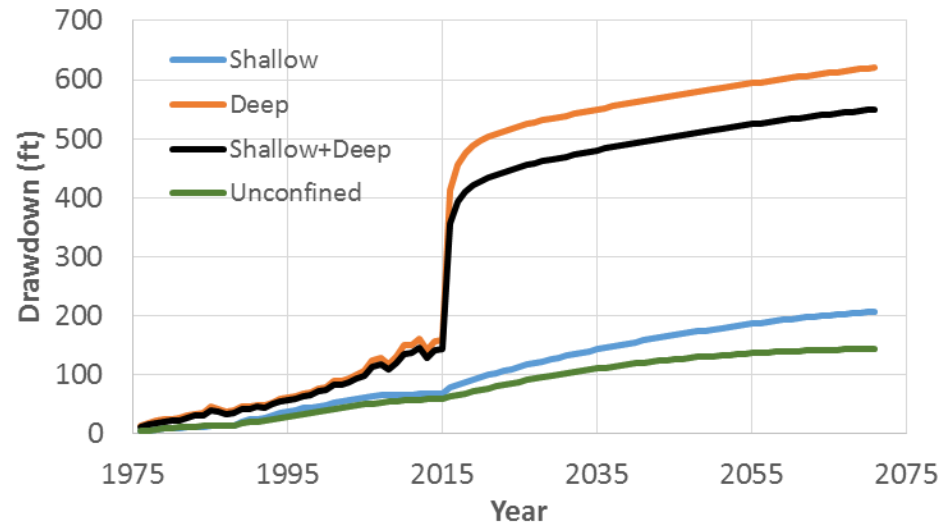


Pumping Reduction 4%

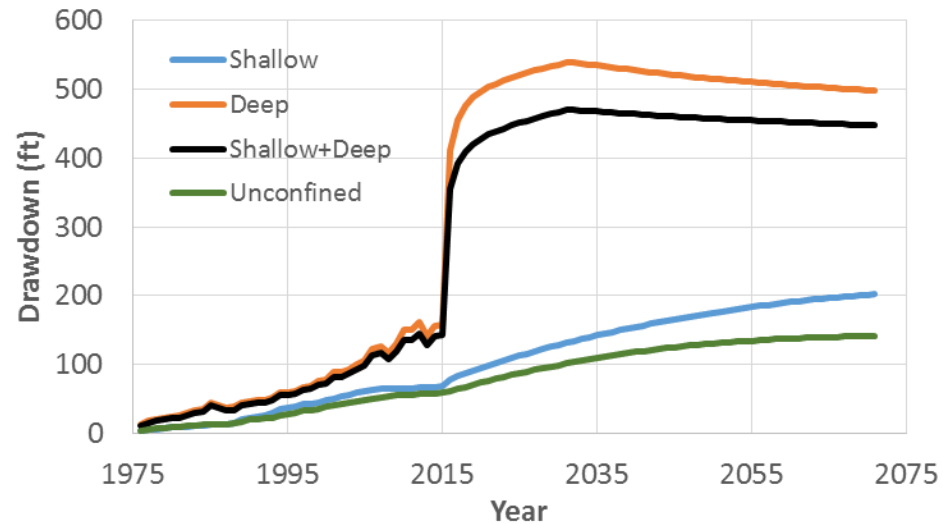


# Results for Blue Water-Manor Pumping

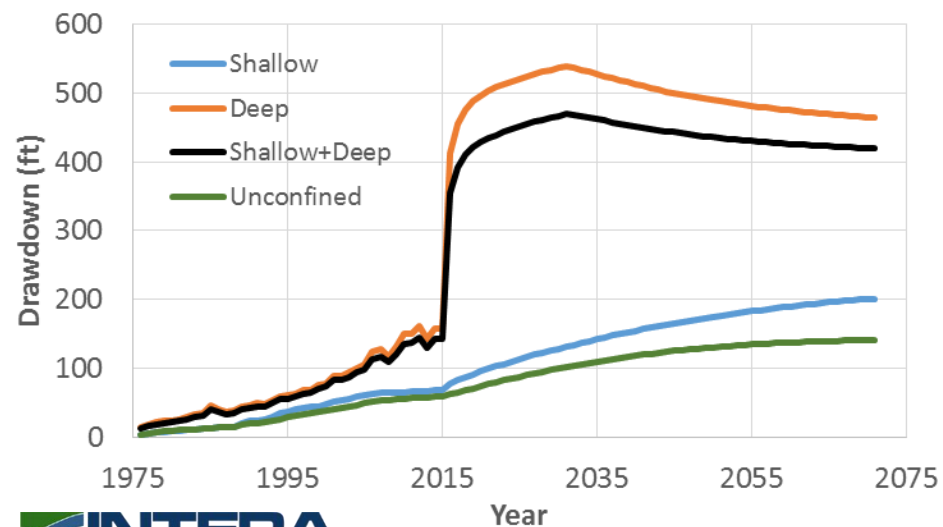
## Scenario 1



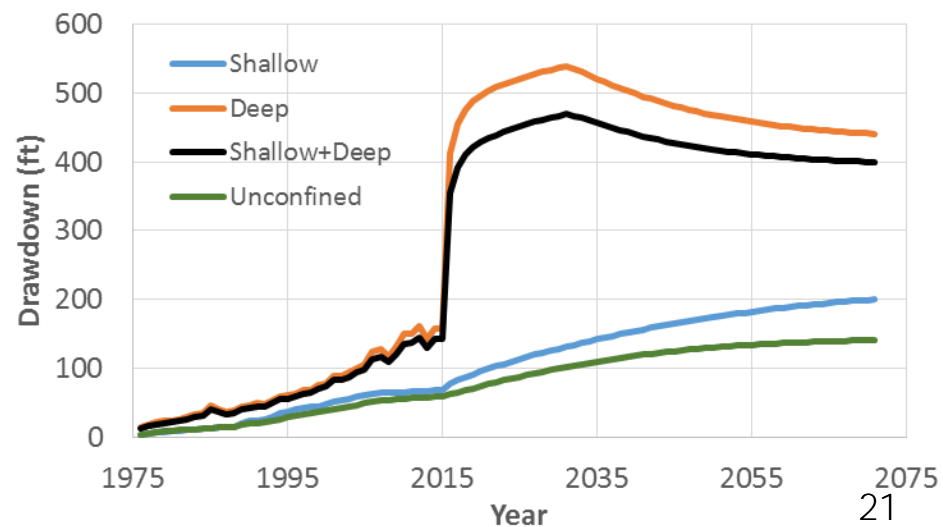
## Pumping Reduction 2%



## Pumping Reduction 3%

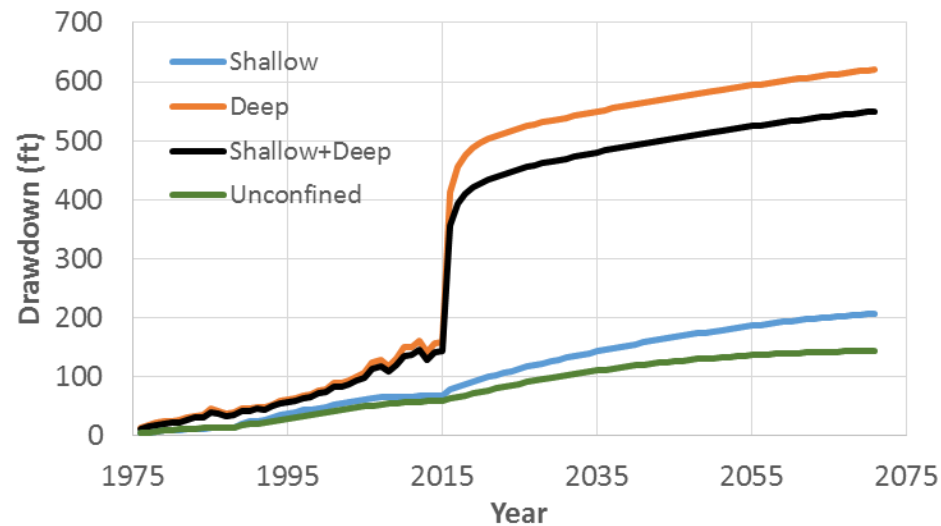


## Pumping Reduction 4%

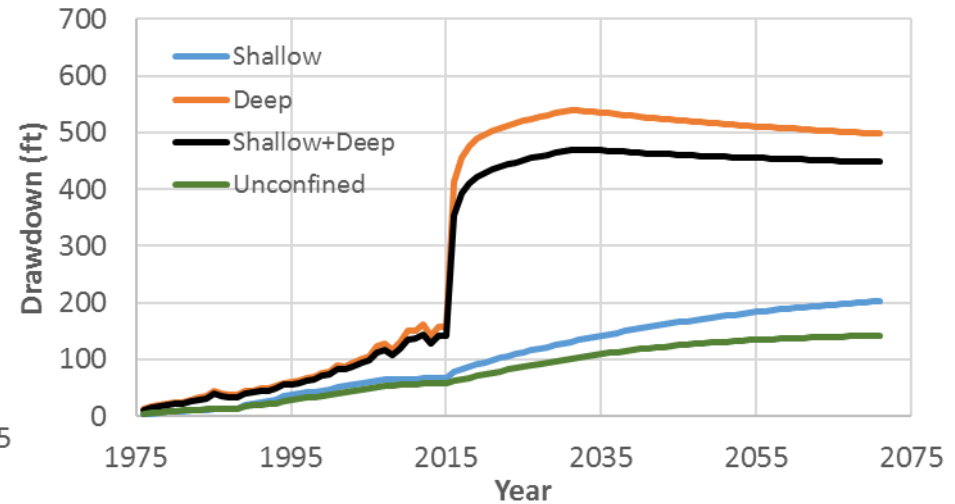


# Results for Blue Water-SAWS Pumping

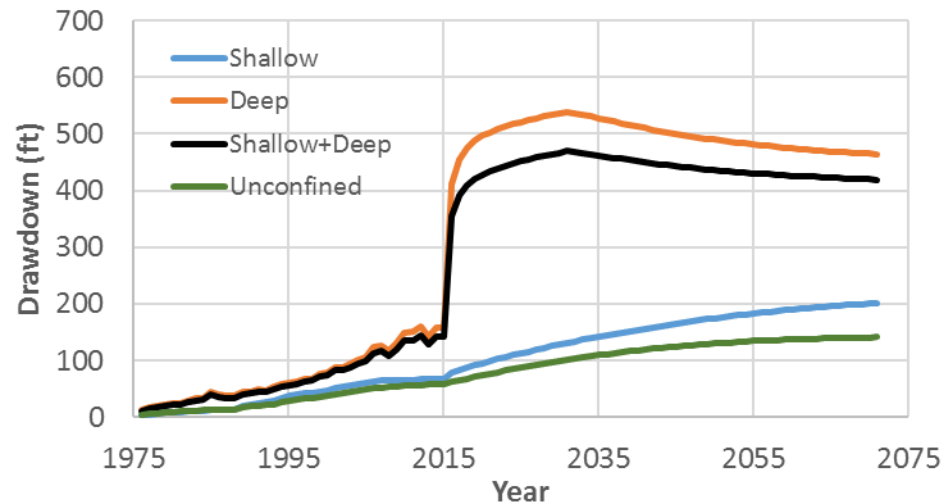
Scenario 1



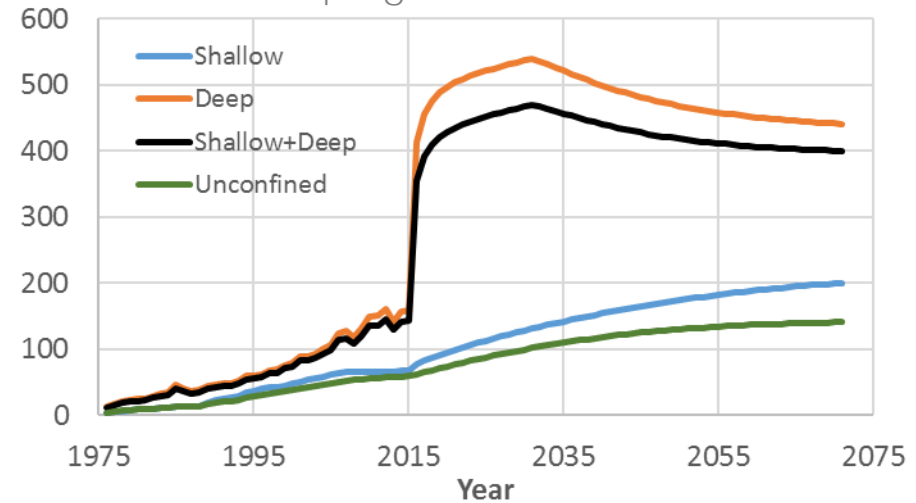
Pumping Reduction 2%



Pumping Reduction 3%

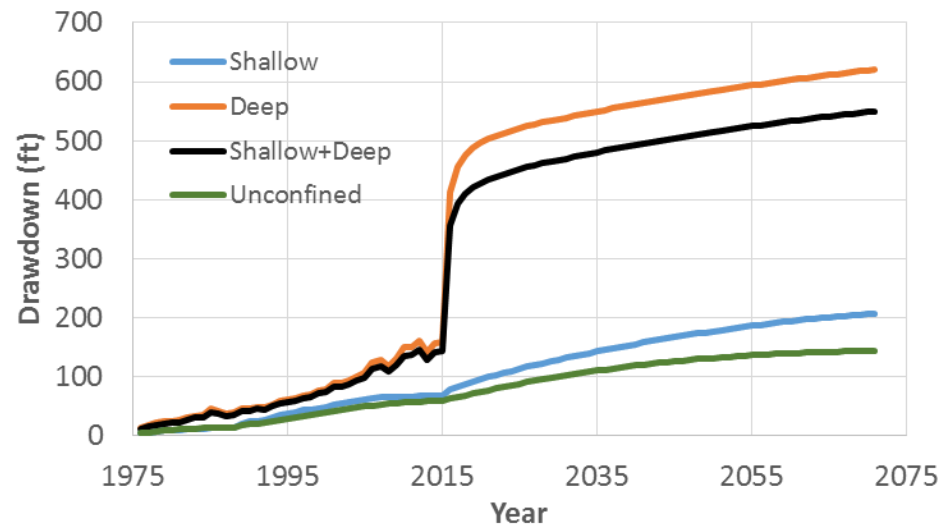


Pumping Reduction 4%

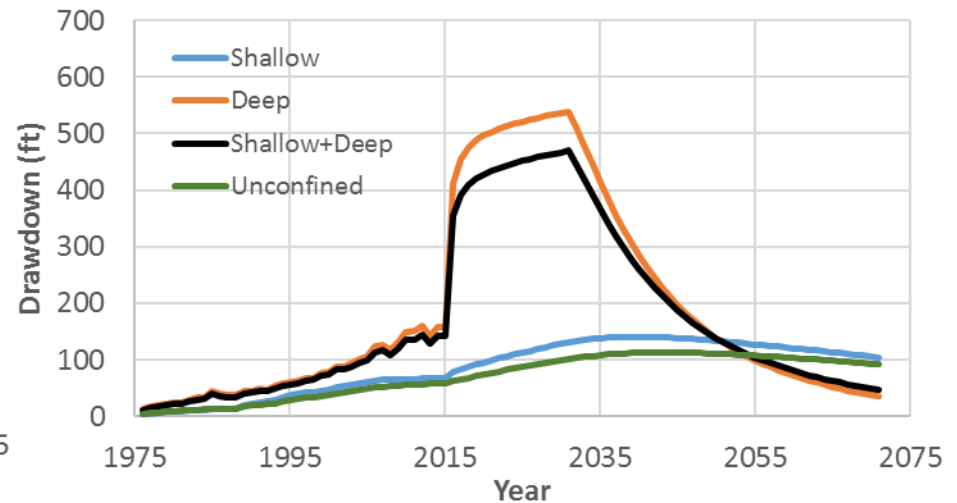


# Results for 10% Reduction

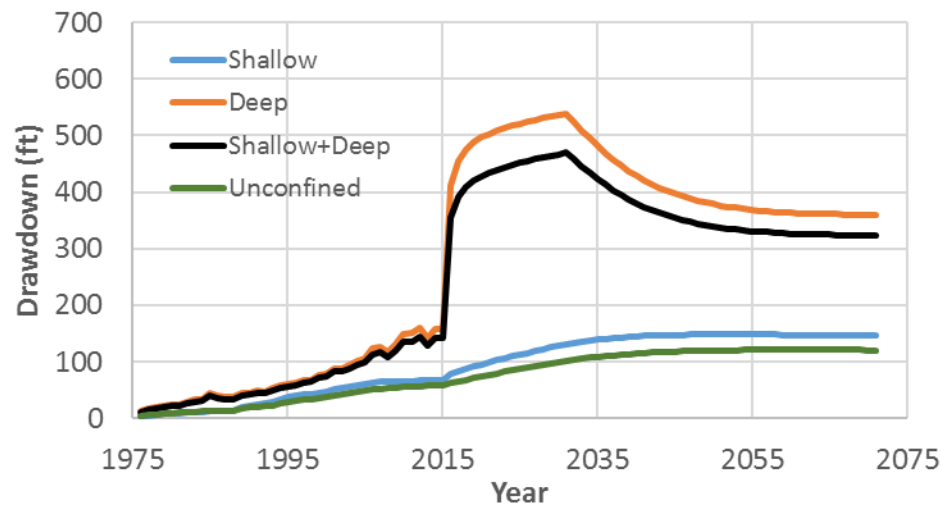
## Scenario 1



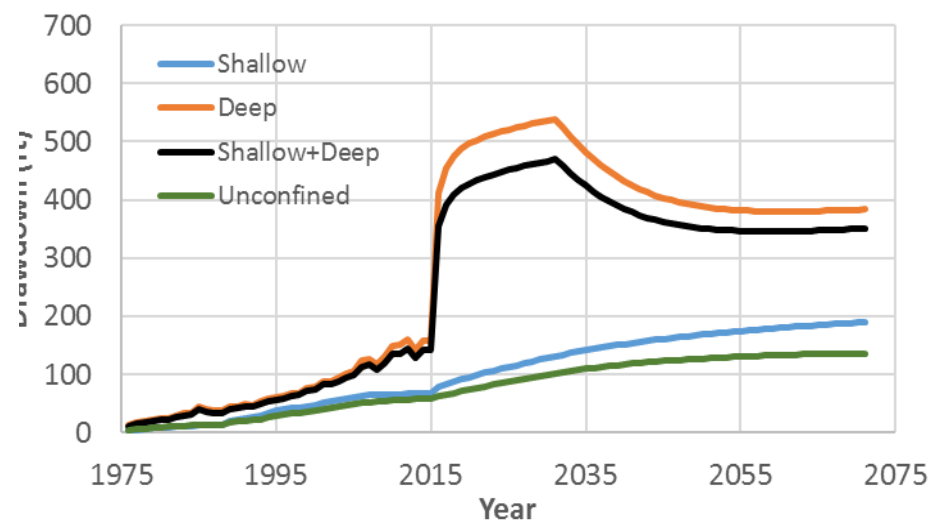
## All Wells



## All POSGCD Wells



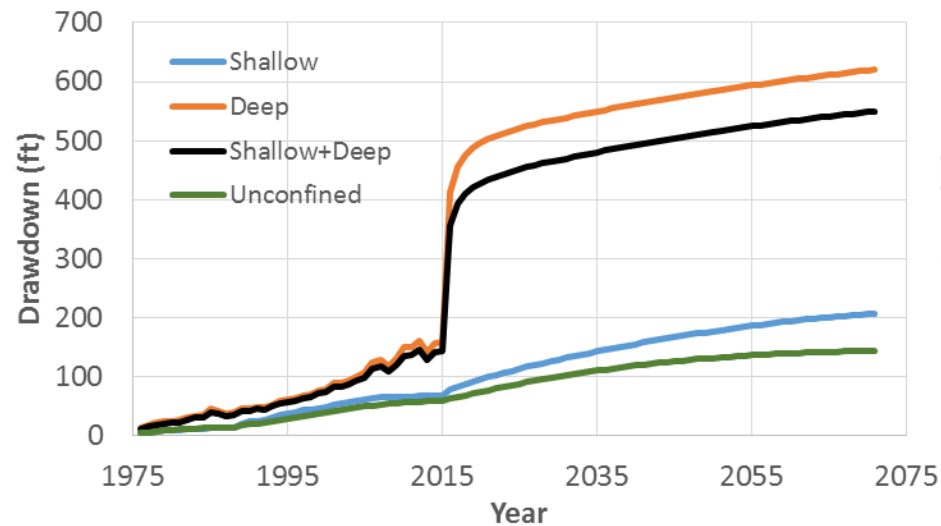
## POSGCD-Deep Wells



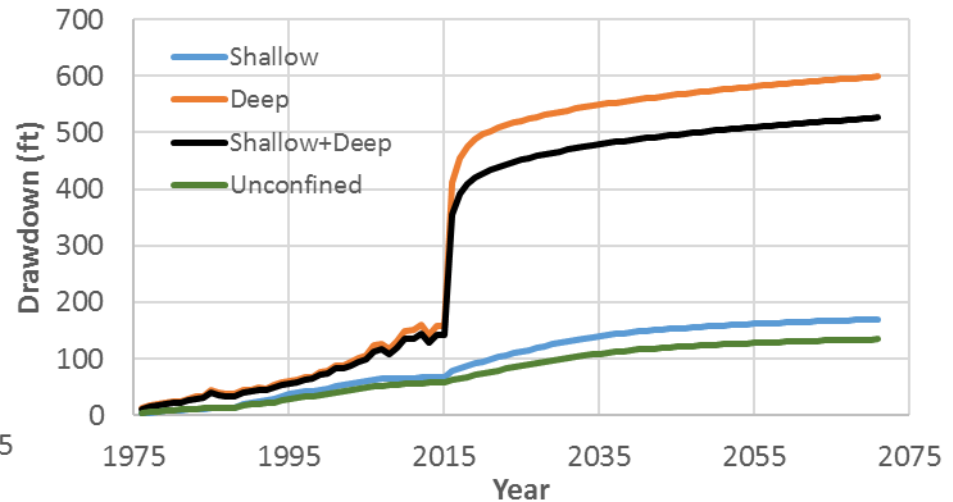
Note: this is a back pocket slide not included in original packet. 23

# Results for 10% Reduction

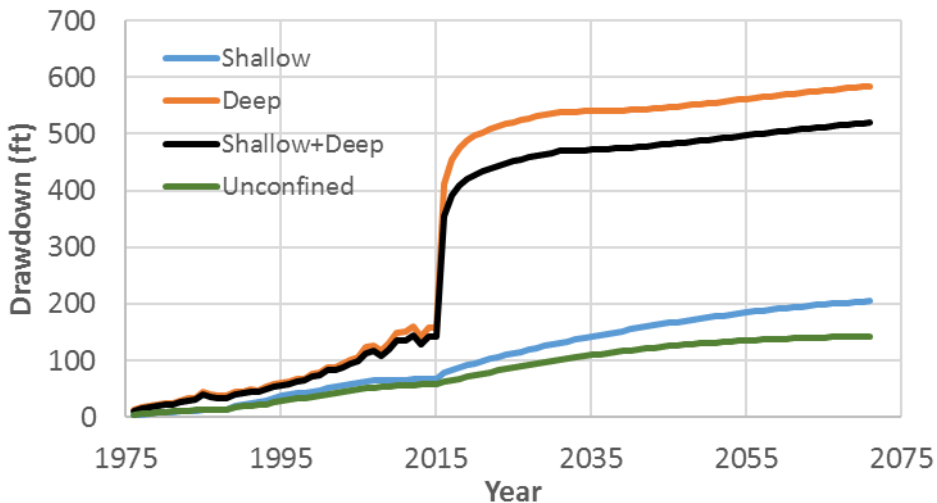
Scenario 1



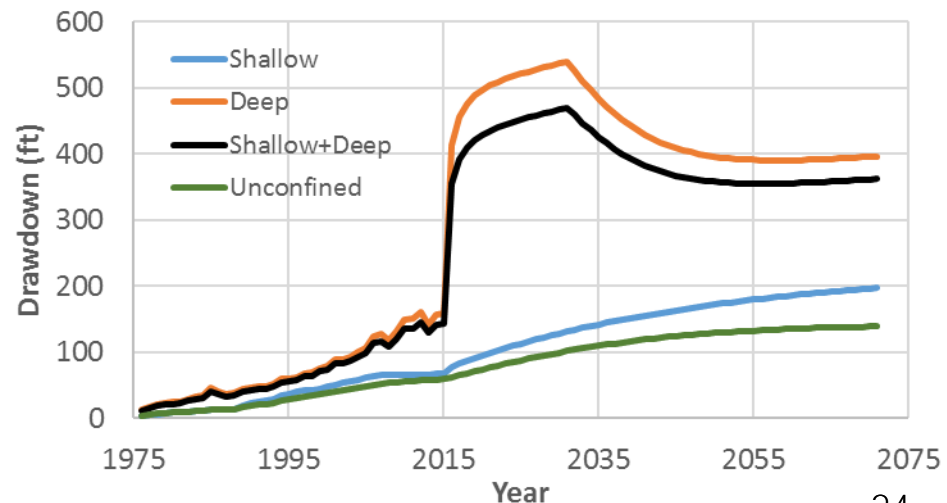
POSGCD-Shallow Wells



Blue Water – Manor Pumping



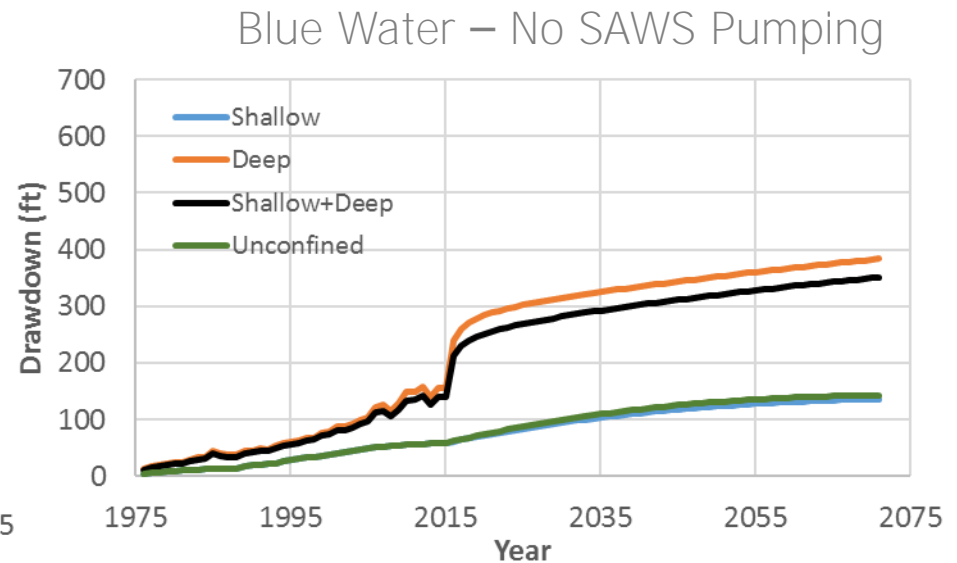
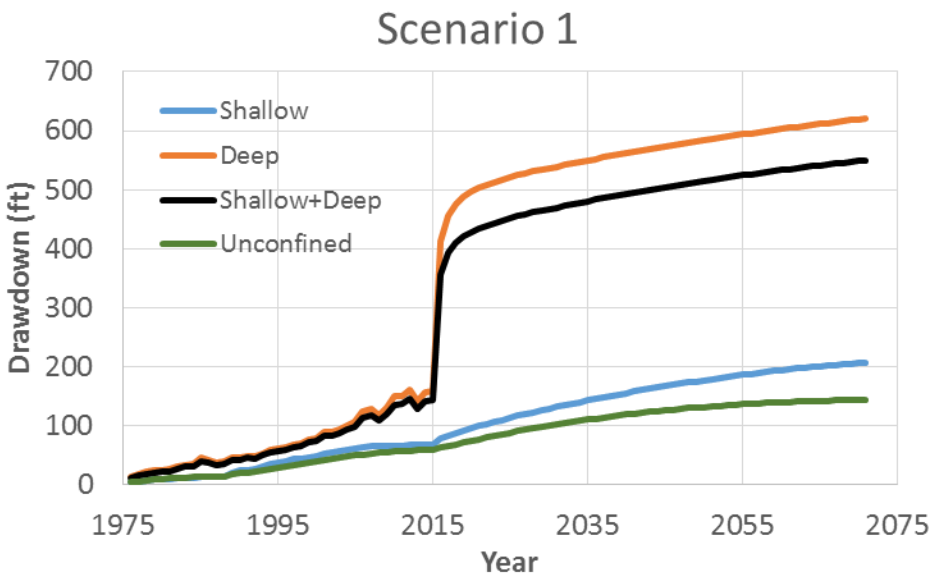
Blue Water – SAWS Pumping



Note: this is a back pocket slide not included in original packet. 24



# Results No Blue Water – SAWS Pumping



Note: this is a back pocket slide not included in original packet. 25