GMA 12

- Preliminary Results and Discussion of Yegua-Jackson and QC/Sparta/C-W Modeling Results

by

GMA 12 Consultant Team

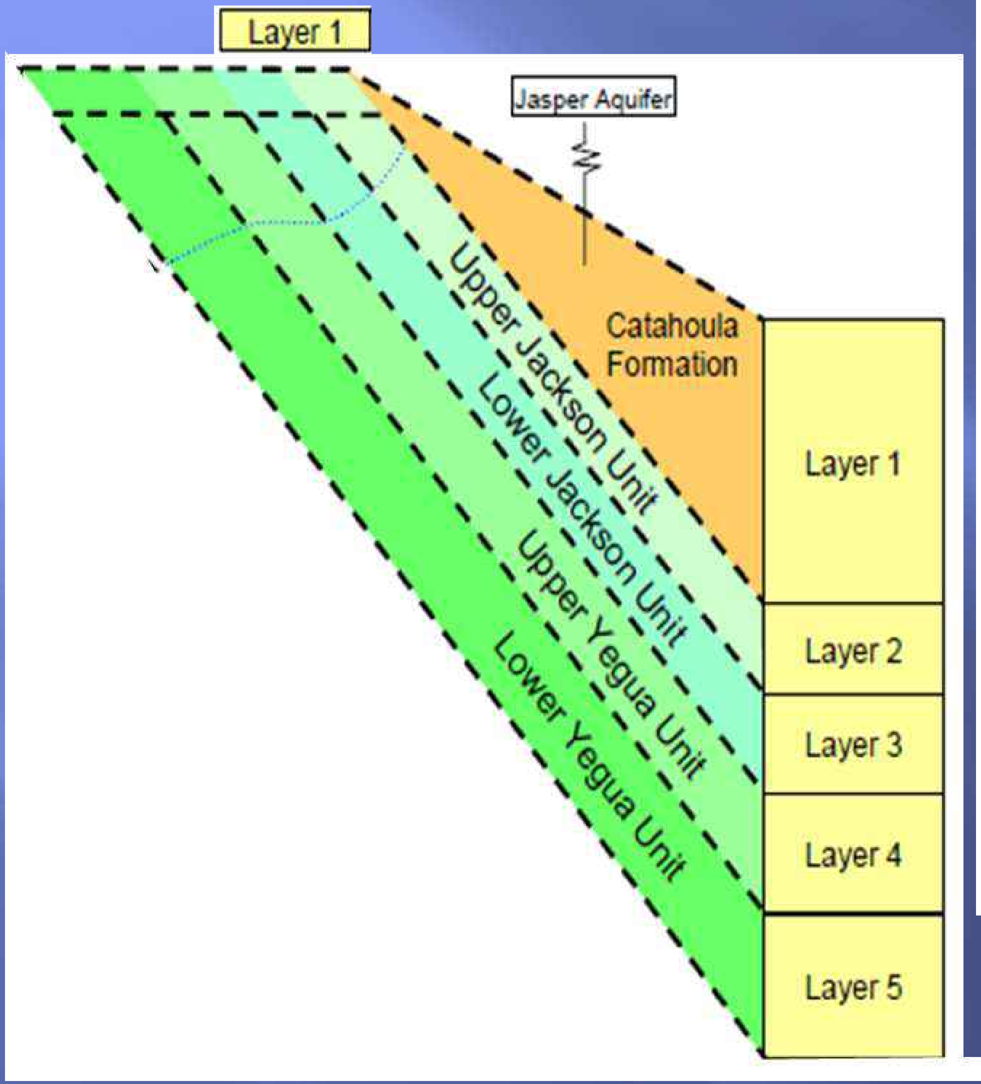
January 29, 2020

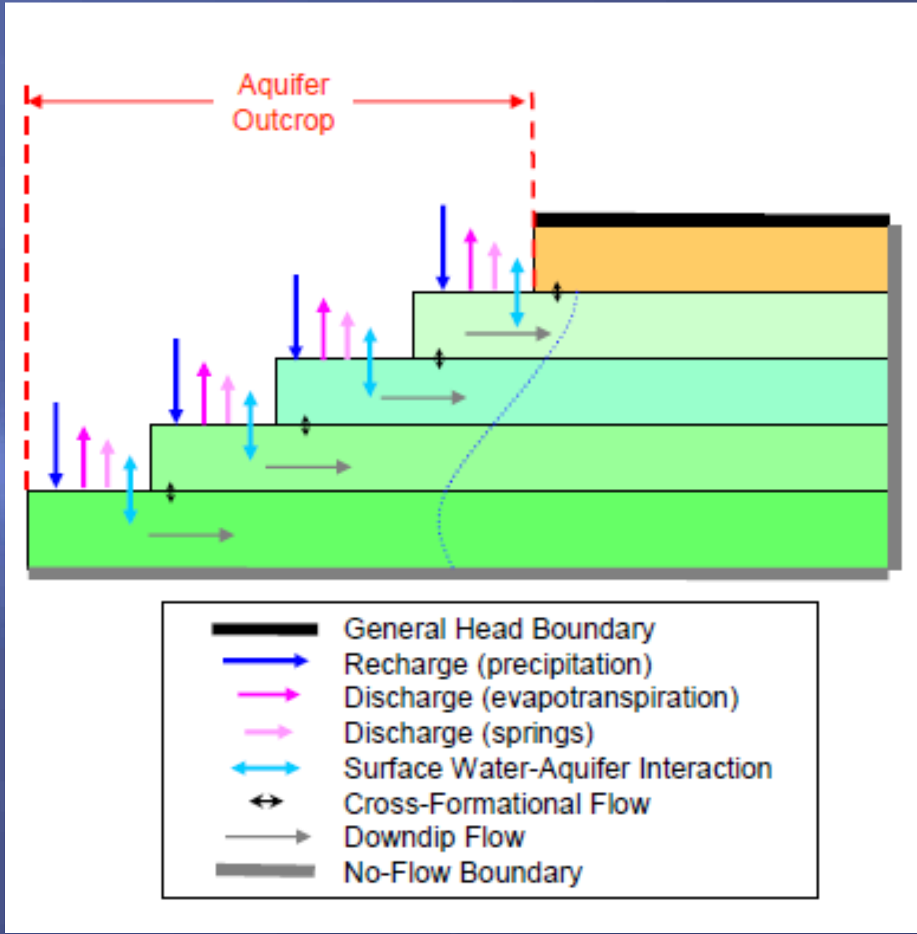
Outline

- Revised Yegua-Jackson Simulations (#11)

- Sensitivity analysis on PS-7 and PS-9 Simulations (#12, #13)

Yegua-Jackson GAM





Yegua-Jackson DFC Run (YJ-PS1)

TABLE 10 MODELED AVAILABLE GROUNDWATER FOR THE YEGUA-JACKSON AQUIFER IN GROUNDWATER MANAGEMENT AREA 12 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2069. VALUES ARE IN ACRE-FEET PER YEAR.

Groundwater Conservation District	County	Aquifer	2010	2020	2030	2040	2050	2060	2069
Brazos Valley GCD	Brazos	Jackson	4,411	4,404	4,402	4,402	4,402	4,402	4,402
Brazos Valley GCD	Brazos	Yegua	2,452	2,452	2,452	2,452	2,452	2,452	2,452
Brazos Valley GCD Total[1]		**Yegua-Jackson**	**6,863**	**6,856**	**6,854**	**6,854**	**6,854**	**6,854**	**6,854**
Fayette County GCD[1]	**Fayette[3]**	**Yegua-Jackson**	**9,262**	**9,262**	**9,262**	**9,262**	**9,262**	**9,261**	**9,261**
Lost Pines GCD[2]	Bastrop	Yegua-Jackson	NR	NR	NR	NR	NR	NR	NR
Lost Pines GCD[2]	Lee	Yegua-Jackson	NR	NR	NR	NR	NR	NR	NR
Lost Pines GCD Total[1,2]		**Yegua-Jackson**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**
Mid-East Texas GCD	Leon	Yegua-Jackson	0	0	0	0	0	0	0
Mid-East Texas GCD	Madison	Yegua-Jackson	809	809	809	809	809	809	809
Mid-East Texas GCD Total[1]		**Yegua-Jackson**	**809**	**809**	**809**	**809**	**809**	**809**	**809**
Post Oak Savannah GCD[1]	**Burleson**	**Yegua-Jackson**	**14,544**	**14,544**	**12,576**	**12,564**	**12,478**	**12,326**	**10,200**
GMA 12 Total[1]		**Yegua-Jackson**	**31,478**	**31,471**	**29,501**	**29,489**	**29,403**	**29,250**	**27,124**

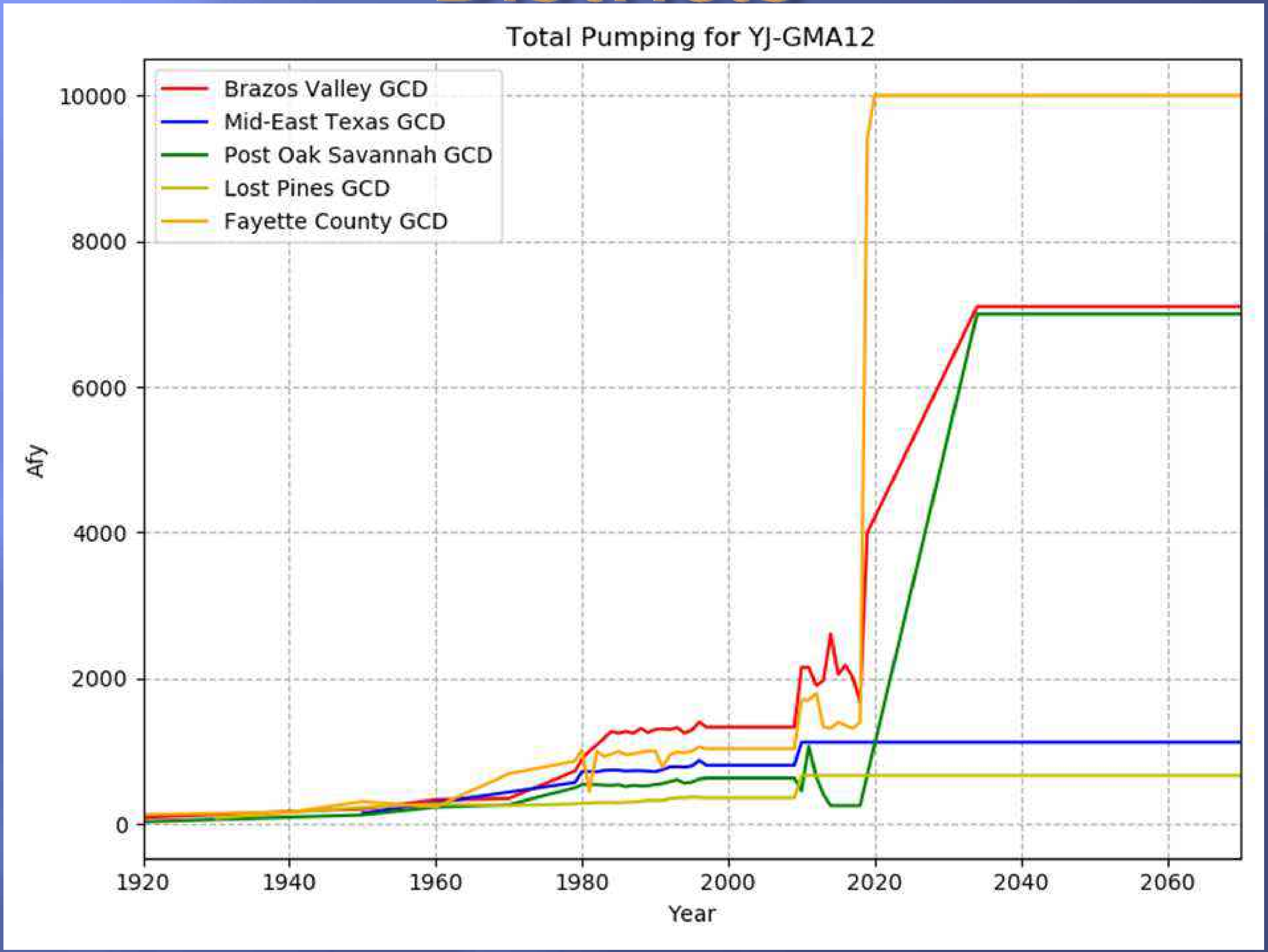
1. Individual estimates are rounded and may not always sum up to the total value displayed.
2. NR: Groundwater Management Area 12 declared the Yegua-Jackson Aquifer not relevant in these areas .
3. Modeled available groundwater values for Fayette County include all of the county (GMA 12 and GMA 15 portions)

Yegua-Jackson Run (YJ-PS2)

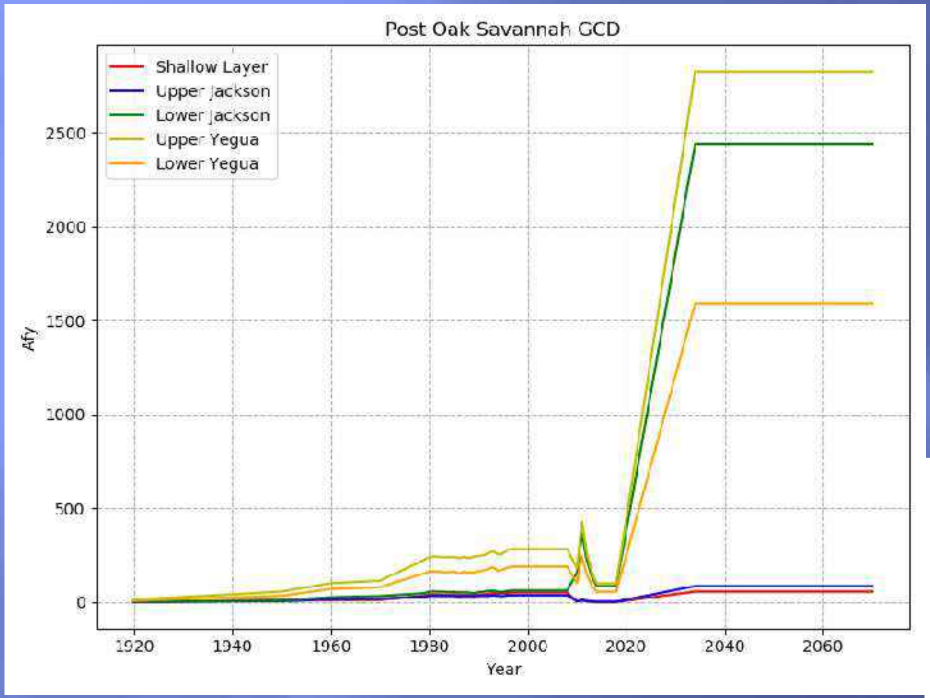
- YJ-PS1 historical pumping from 2010 to 2018 is too high
- GMS 12 Districts revised pumping rates to reflect
  - historical pumping from 2010 to 2018
  - revised estimates for future pumping

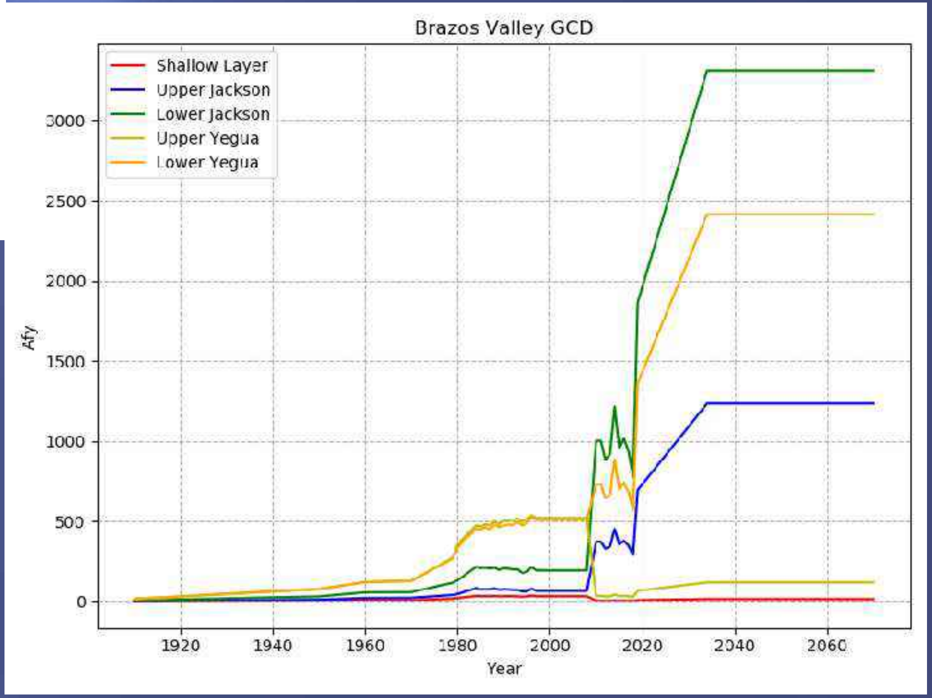
GCD	Total 2070 YJ Pumping AFY
FCGCD	10,000
BVGCD	7,100
POSGCD	7,000
METGCD	1,121
LPGCD	661

Yegua-Jackson Run (YJ-PS2), All Districts

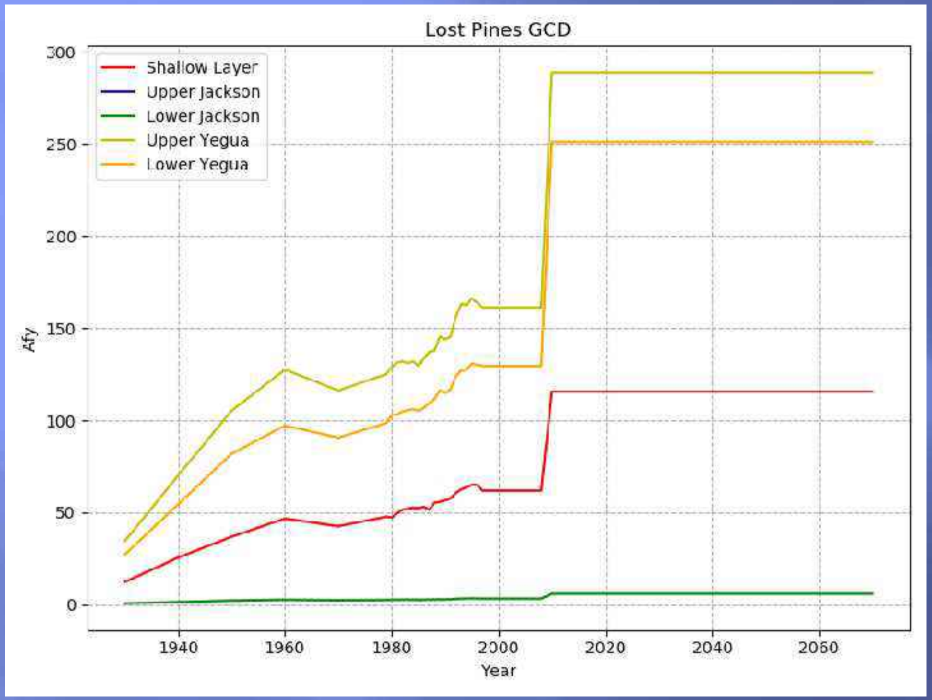


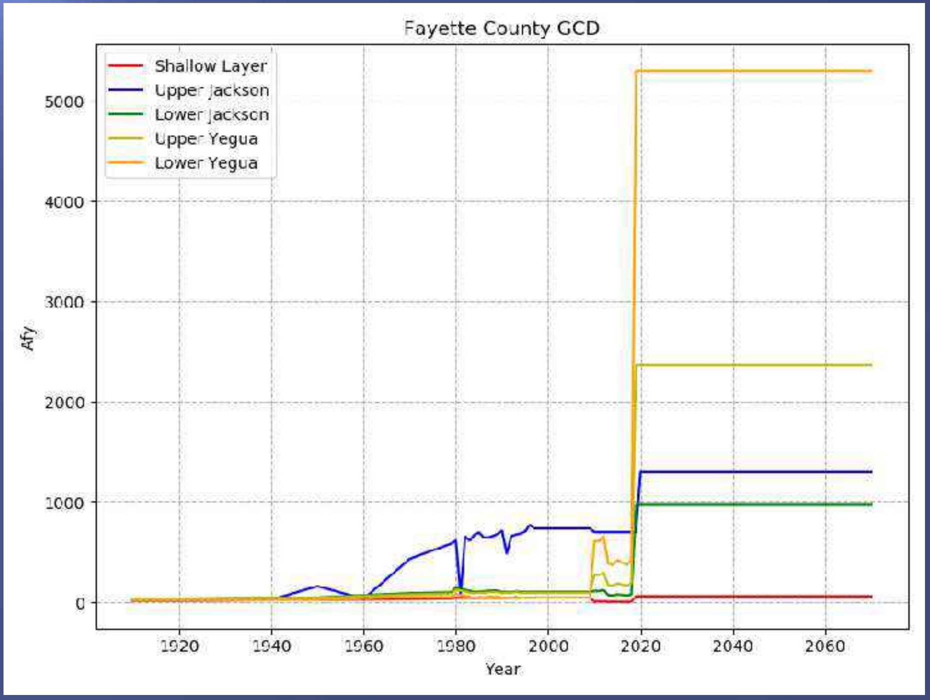
YJ-PS2 for POSGCD & BVGCD



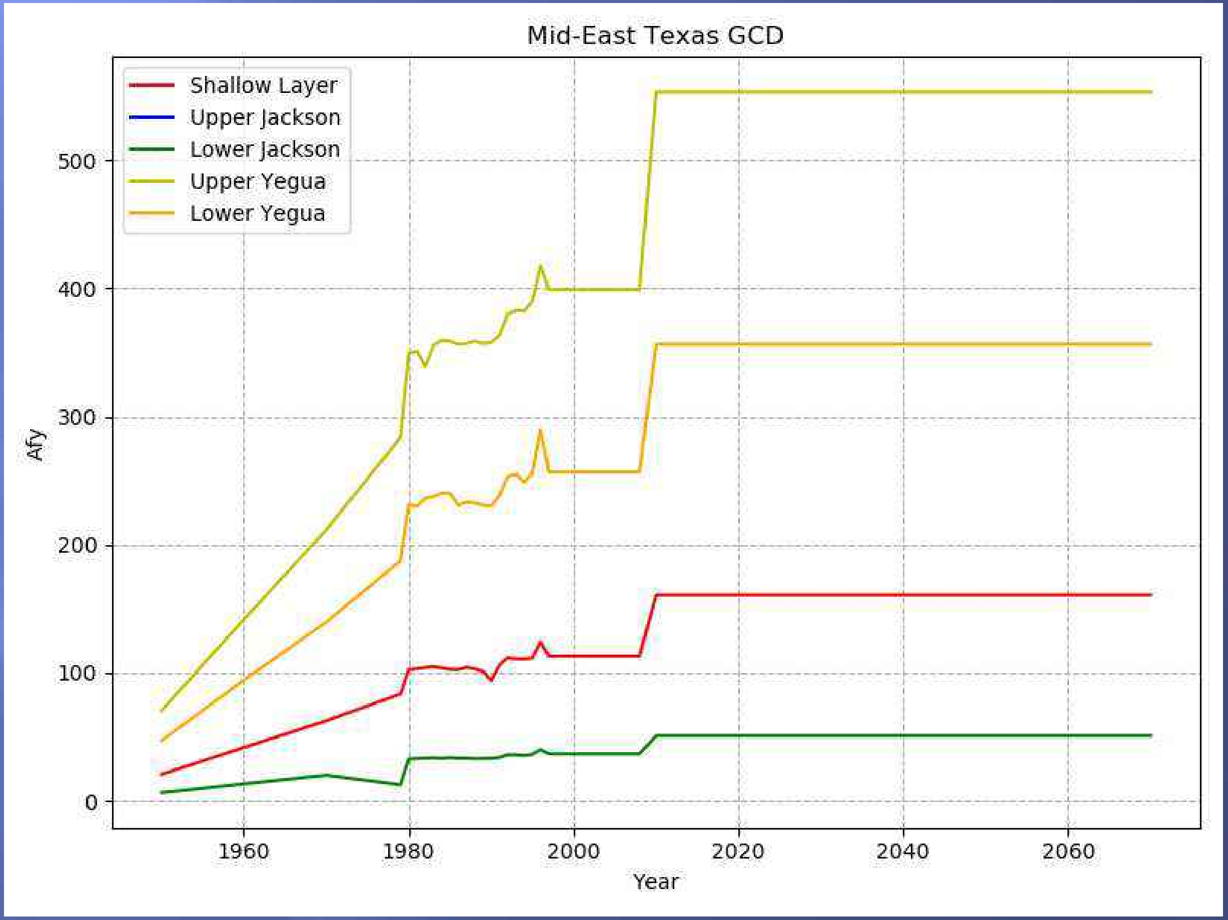


YJ-PS2 for LPGCD & FCGCD





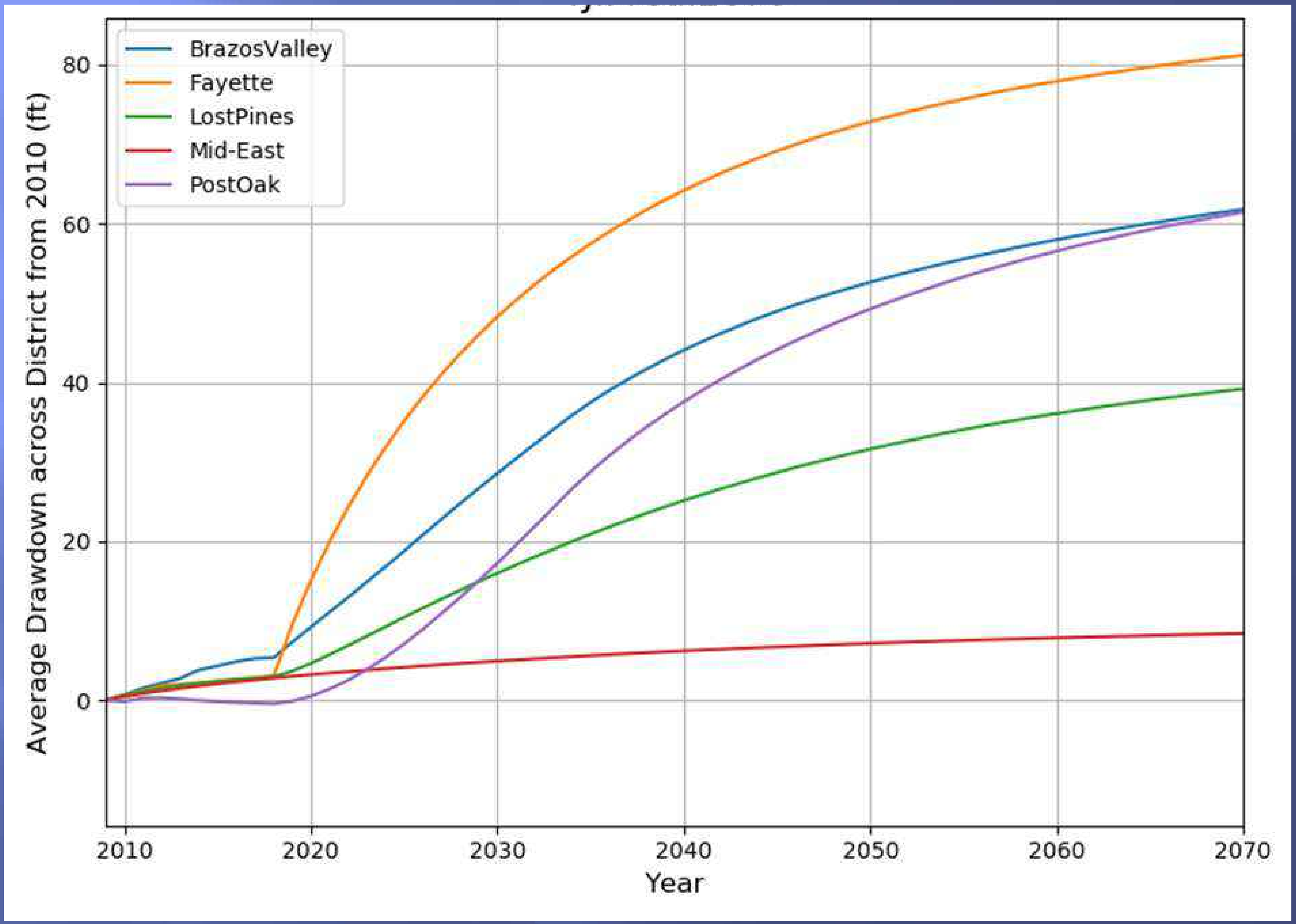
YJ-PS2 for METGCD



Average Drawdowns

GCD	Existing DFC, ft			Drawdown 2010-2070, ft	
	Yegua	Jackson	Yegua-Jackson	PS1	PS2
Brazos Valley	70	114	-	73	61
Fayette	-	-	77	77	81
Lost Pines	-	-	-	42	39
Mid-East	-	-	7	7	8
PostOak	-	-	100	100	61

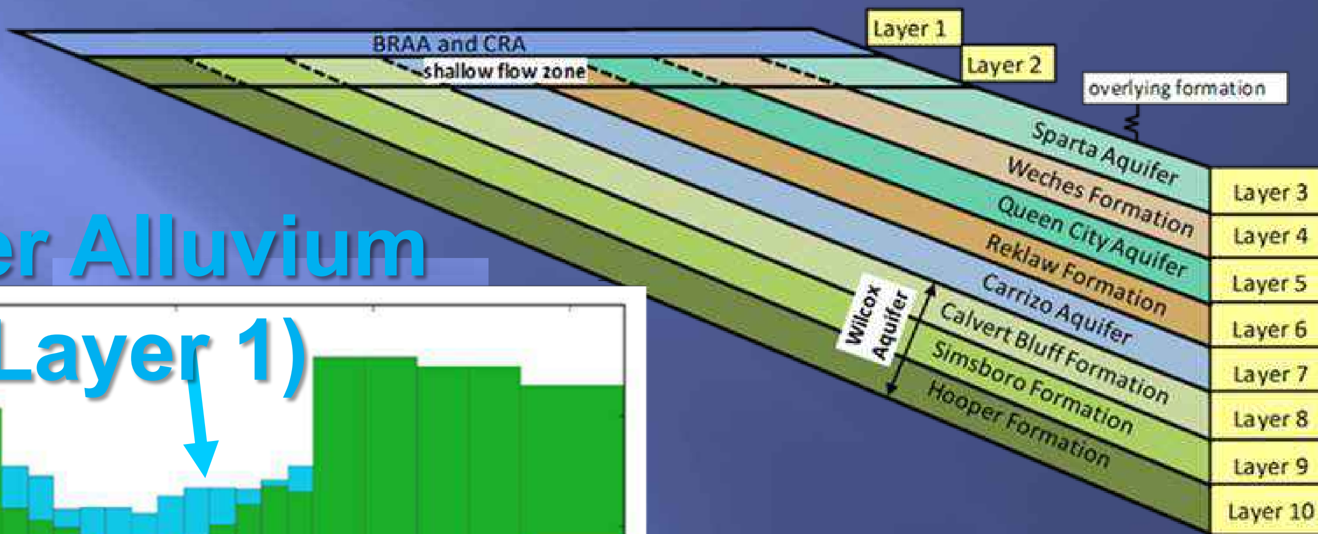
Average Drawdown for YJ-PS2



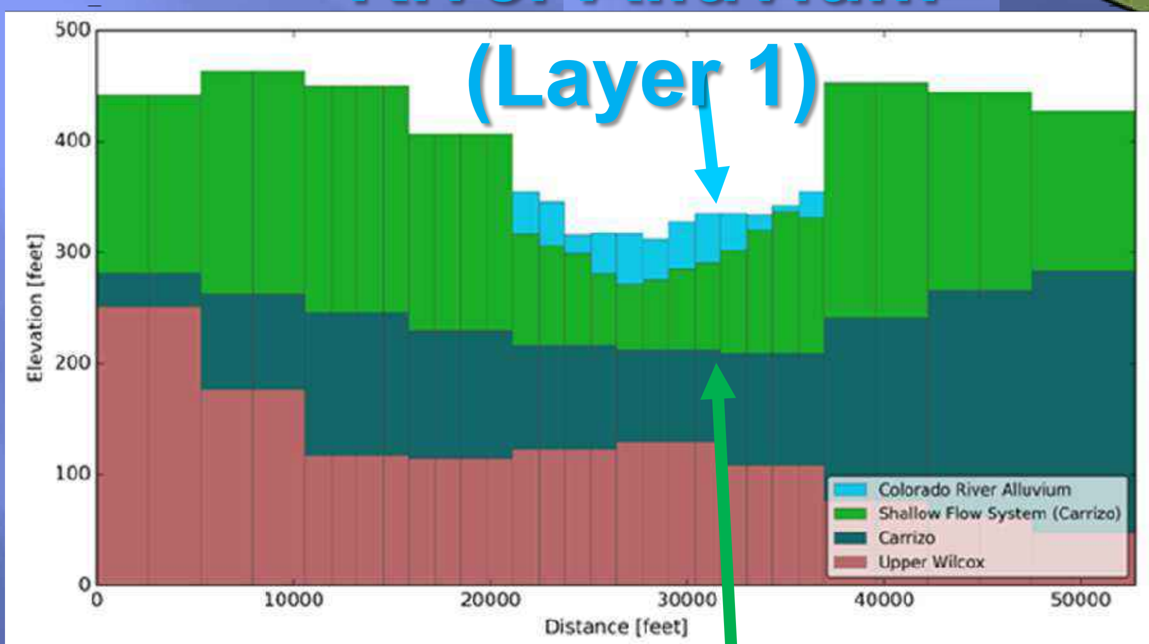
Yegua-Jackson DFC Runs

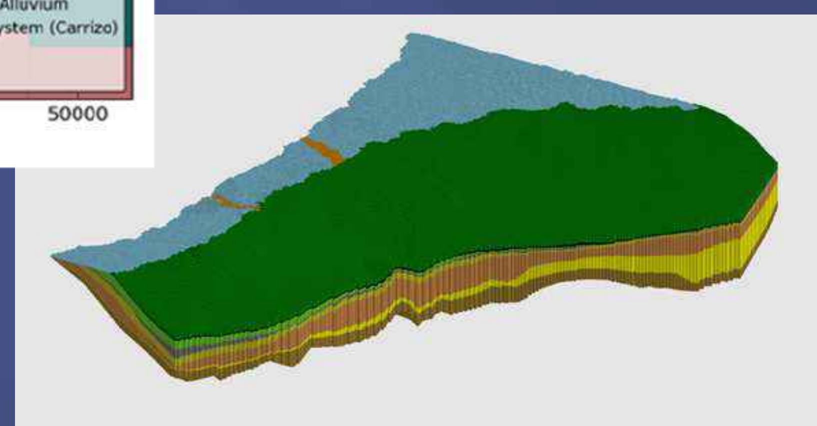
- Additional checks will be performed on YJ-PS2 by GMA 12 Consultants
- No additional Runs are Planned
- District GMs will determine if Additional Runs are Needed

SP/QC/CW GAM



River Alluvium (Layer 1)





Shallow Flow Zone (Layer 2)

SP/QC/CW GAM

- Replace pumping in Brazos River Alluvium in SP/QC/CW GAM with amounts in BRAA GAM Run

GCD	Well Pumping from Brazos River Alluvium (afy)	
	BRAA Model	Carrizo-Wilcox Model
POSGCD	70,000	30,500
BVGCD	140,000	61,000

Sensitivity of Average Drawdown To Change in BRAA Pumping

Aquifer	POSGCD			BVGCD		
	Existing DFC	Drawdown 2010-2070, feet		Existing DFC	Drawdown 2010-2070, feet	
		S7	S7 + BRAA		S7	S7 + BRAA
Sparta	28	23	17	12	47	46
Queen City	30	21	18	12	41	39
Carrizo	67	176	176	61	76	76
Calvert Bluff	149	182	182	125	95	96
Simsboro	318	352	352	295	211	212
Hooper	205	220	220	207	151	151

Aquifer	POSGCD			BVGCD		
	Existing DFC	Drawdown 2010-2070, feet		Existing DFC	Drawdown 2010-2070, feet	
		S9	S9 + BRAA		S9	S9 + BRAA
Sparta	28	6	6	12	21	21
Queen City	30	9	9	12	21	20
Carrizo	67	132	132	61	57	57
Calvert Bluff	149	165	166	125	88	88
Simsboro	318	347	347	295	207	208
Hooper	205	217	217	207	147	148

QUESTIONS?