



# ***Welcome to our Annual Customer Meeting***

***Presented by  
David Collinsworth  
General Manager/CEO***

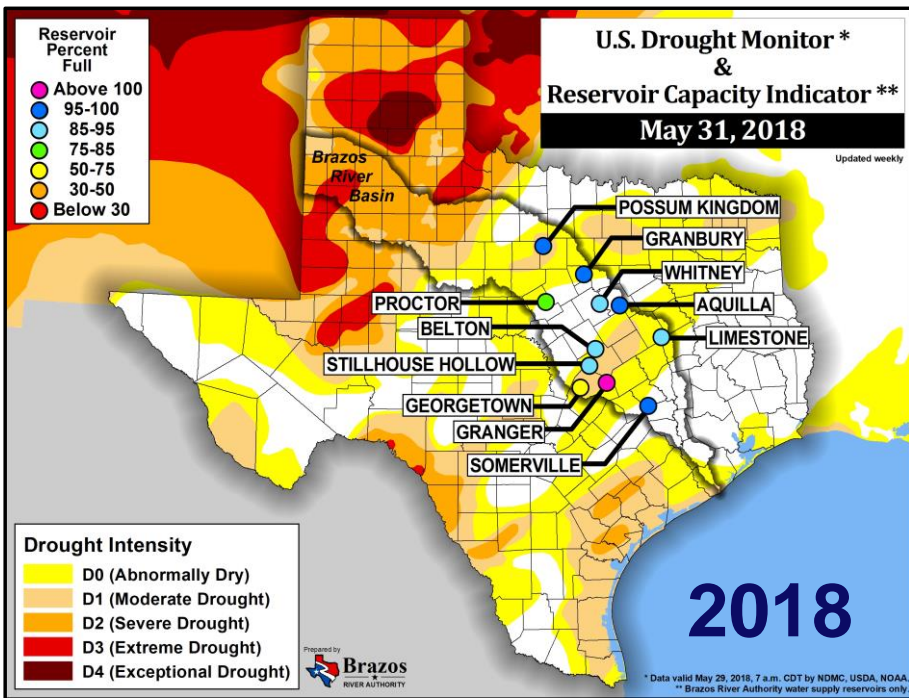
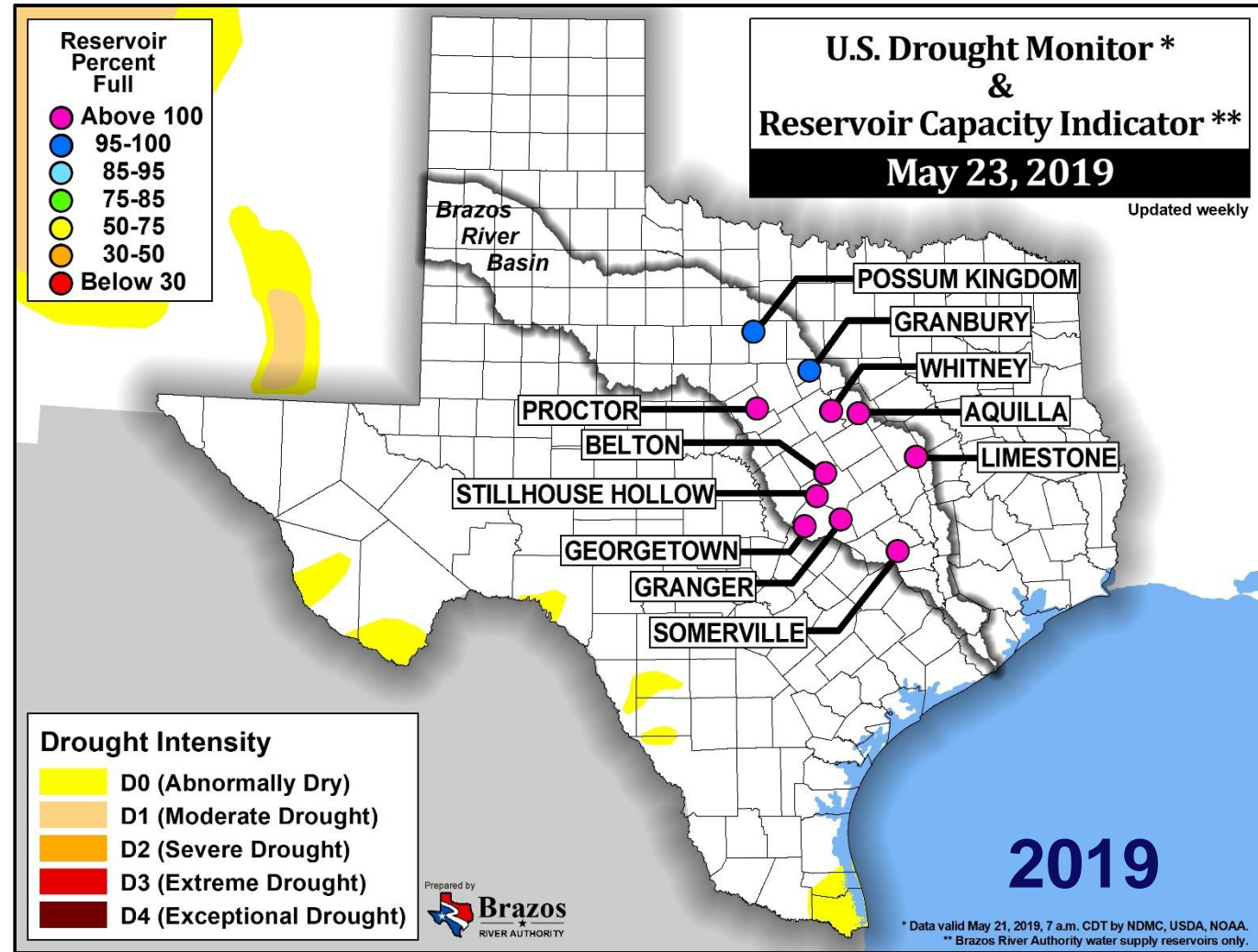
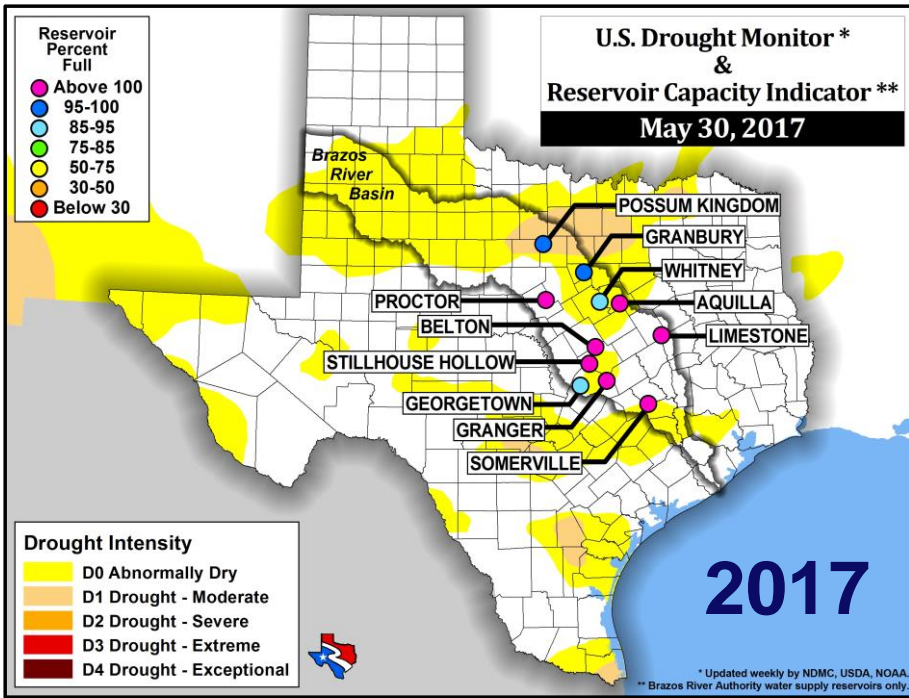


# ***Water Supply Overview***

***Presented by  
Aaron Abel  
Water Services Manager***



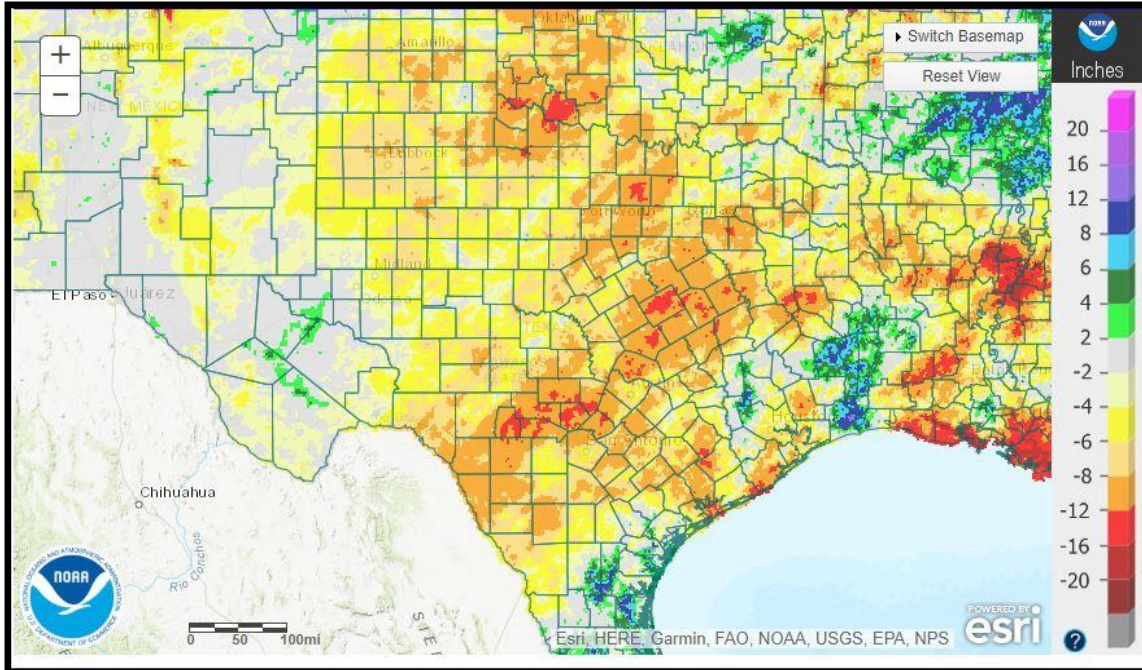
# Drought Monitor & Reservoir Status



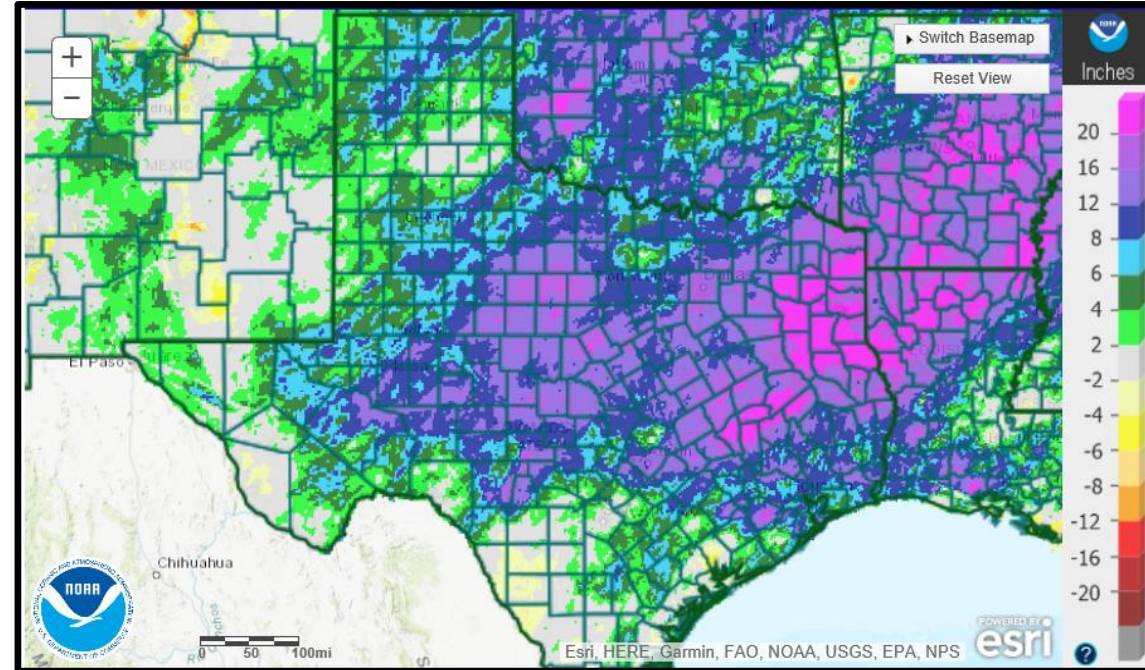


# Departure from Normal Rainfall

October 1, 2017 – June 25, 2018

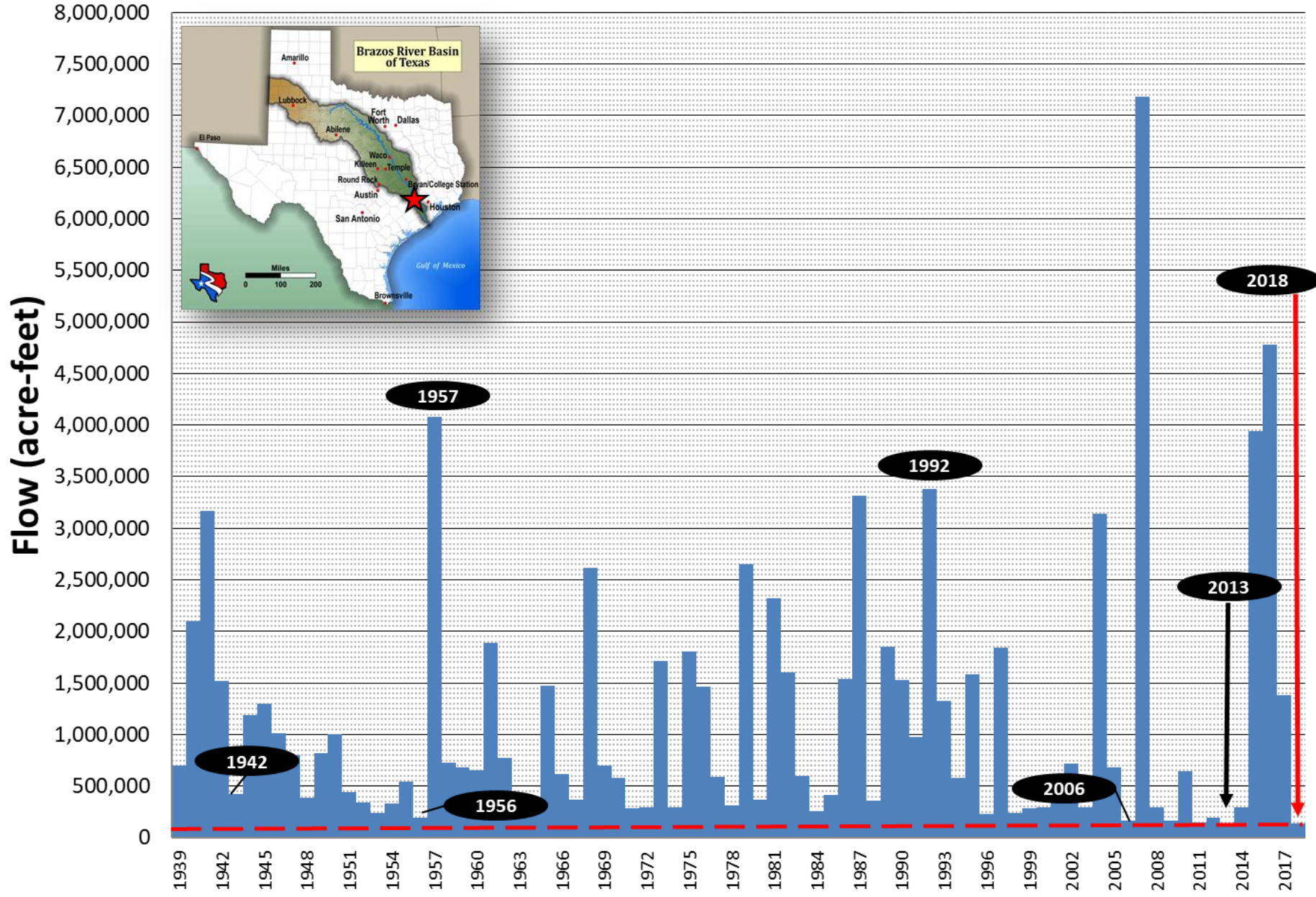


October 1, 2018 – May 28, 2019



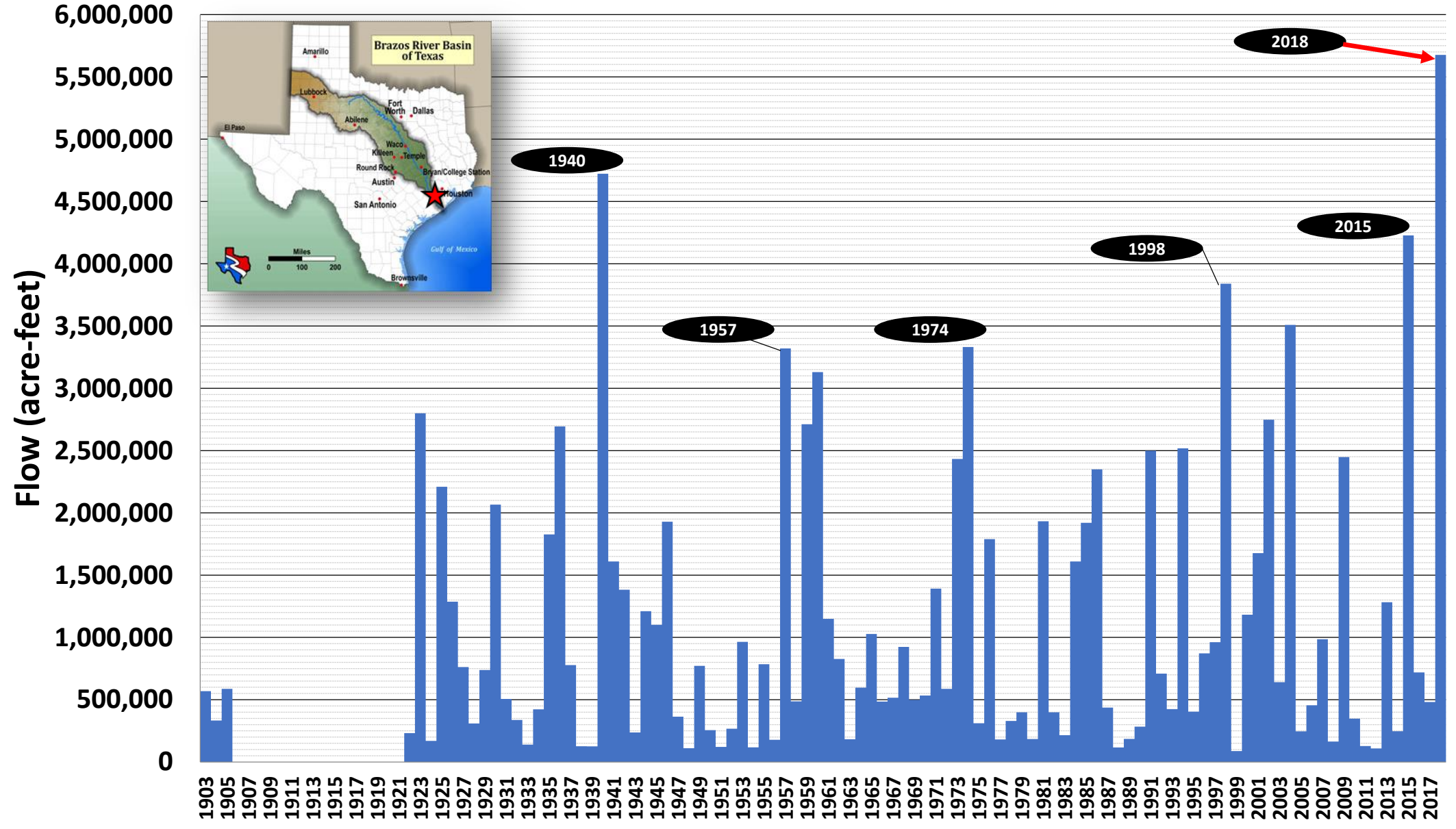


### Jun - Aug Flow Volume at Brazos River Hempstead Gage

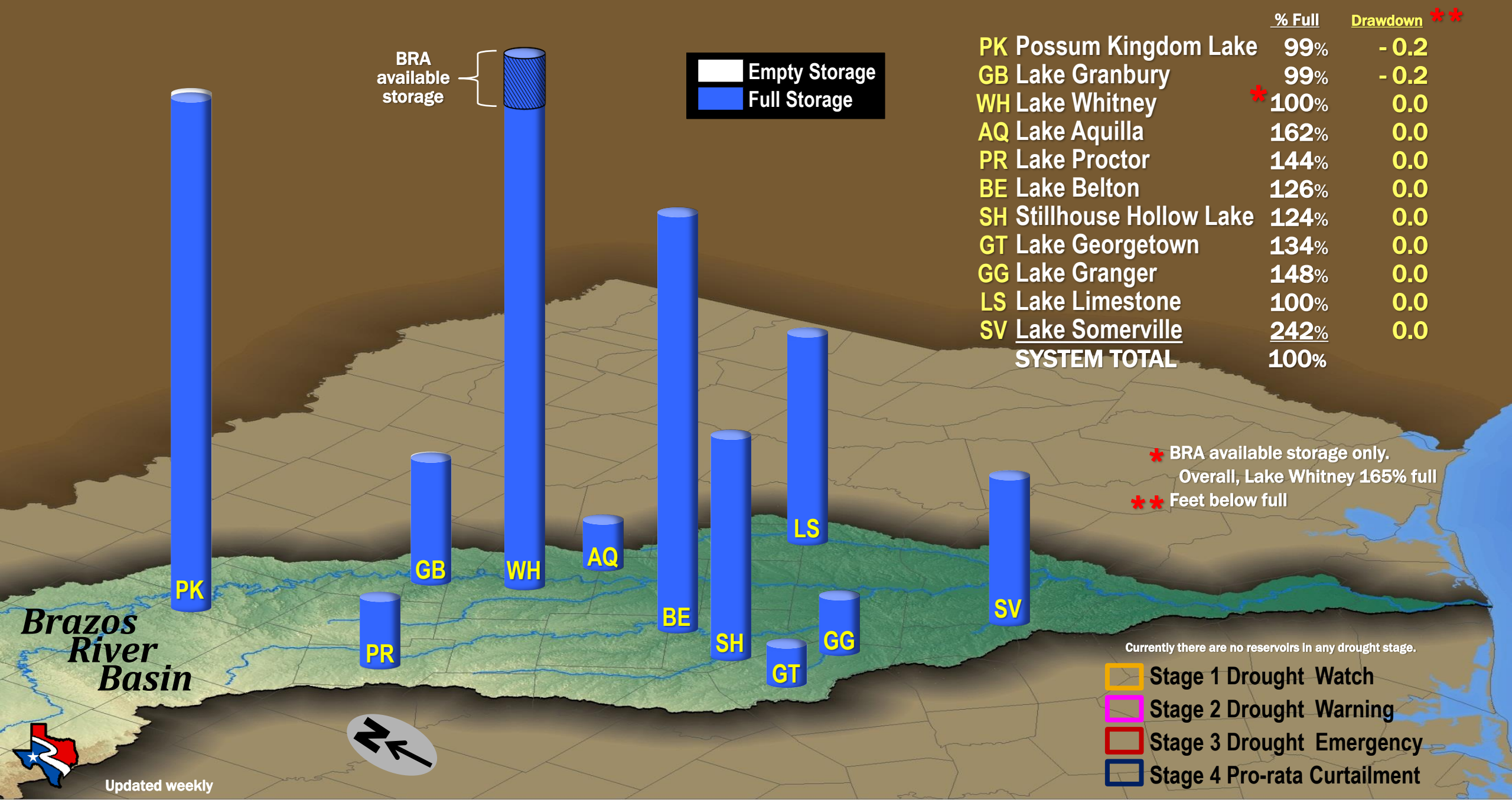




# Oct - Dec Flow Volume at Brazos River Richmond Gage



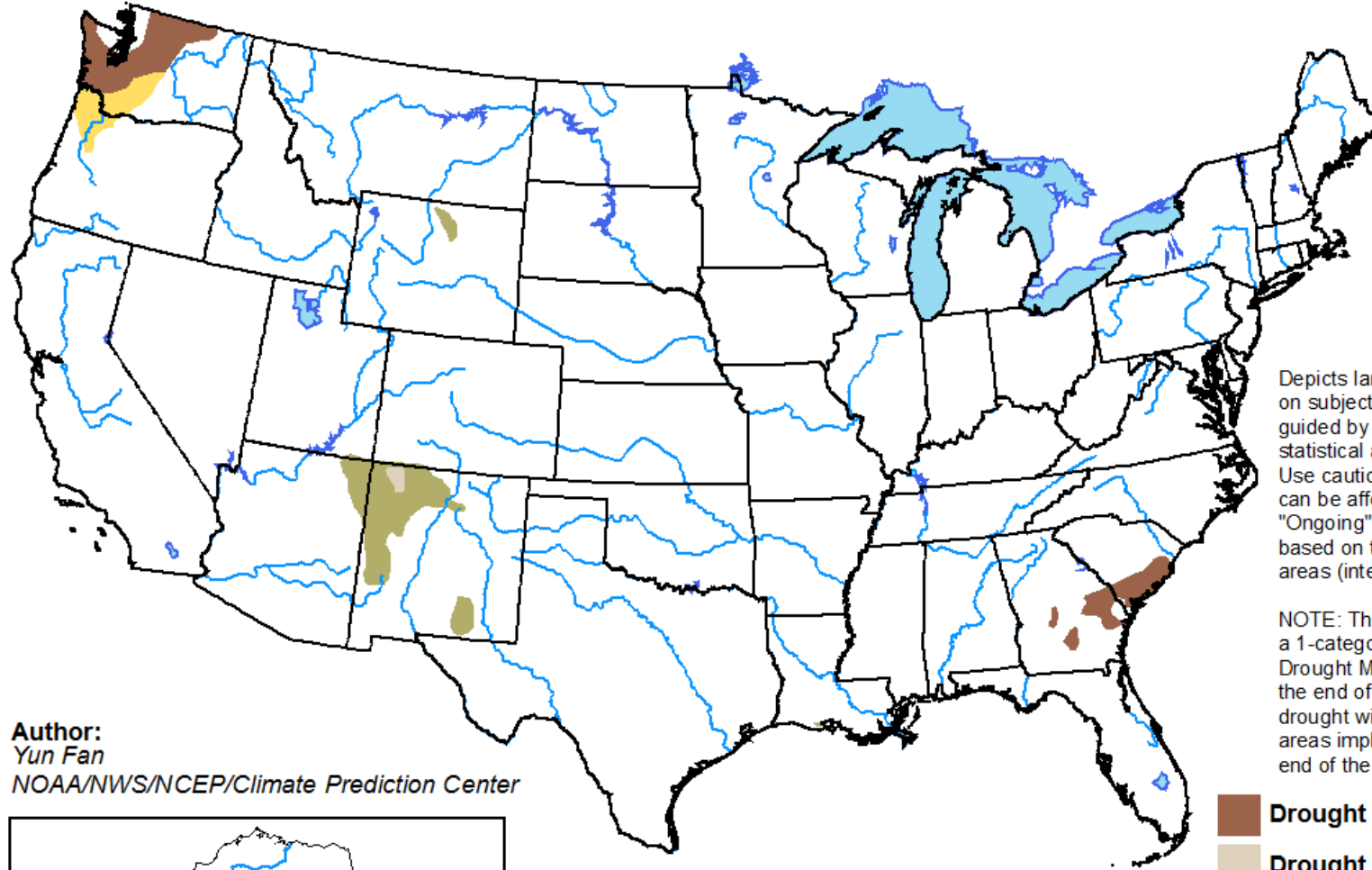
# BRA Water Supply Reservoirs "PERCENT FULL" May 29, 2019



# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period





Valid for May 16 - August 31, 2019  
Released May 16

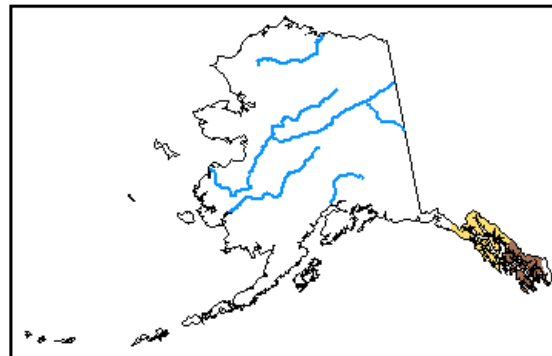


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:  
Yun Fan  
NOAA/NWS/NCEP/Climate Prediction Center

-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



<http://go.usa.gov/3eZ73>





# ***System Operations Permit - Long-term Contracting***

- **BRA BOD Presentation – April 29, 2019**
  - Allocation of approximately 100,000 acre-feet per year
- **BRA coordination of anticipated contract amounts**
- **Updates to our contracting forms – July BOD Meeting**
- **Begin executing contracts August 2019**



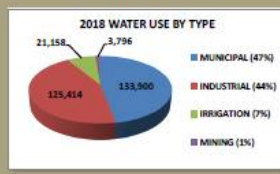
# 2018 Annual Water Use & Reservoir Accounting Summary

Now Available on BRA Website

## Brazos River Authority 2018 Customer Water Use and Reservoir Accounting Summary

2018 WATER USE BY FIRM CUSTOMERS FROM RESERVOIR WATER RIGHTS (ACRE-FEET)	VOLUME (ACRE-FEET)
<b>POSSUM KINGDOM LAKE</b>	
DOUBLE DIAMOND PROPERTIES, INC	622
HILL COUNTRY HARBOUR, L.P.	146
POSSUM KINGDOM WSC	954
BANCH OWNERS ASSOCIATION	242
SPORTSMAN'S WORLD MLD	155
TEXAS PARKS & WILDLIFE DEPT.	874
WEST CENTRAL BRAZOS PIPELINE	2,534
<b>SUBTOTAL:</b>	<b>4,527</b>
<b>BRAZOS RIVER BELOW POSSUM KINGDOM LAKE</b>	
PARKER COUNTY SUD	463
SUGAR TREE, INC	298
VULCAN CONST. MATERIALS, L.P.	977
<b>SUBTOTAL:</b>	<b>1,738</b>
<b>LAKE GRANBURY</b>	
ACTON MUNICIPAL UTILITY DIST.	32
BRAZOS REGIONAL PUBLIC UTILITY AGENCY	3,353
DECORDOVA BOND ESTATES OWNERS	173
GRANDVIEW RECREATIONAL ASSOC	32
GRANBURY, CITY OF	1,356
KING BANCH TURFGRASS, L.P.	134
LENAID, INC.	2,263
LSF DEVELOPMENT CORP.	39
MONARCH UTILITIES I, L.P.	452
PECAN PLANTATION OWNERS ASSOC	231
REX B. MORFELL	120
TEXU - LUMINANT ELECTRIC COMPANY	45,294
WOLF HOLLOW SERVICES, LLC	1,463
<b>SUBTOTAL:</b>	<b>54,856</b>
<b>LAKE WHITNEY</b>	
WHITE BLUFF PROPERTY OWNERS ASSOC	138
<b>BRAZOS RIVER BELOW LAKE WHITNEY</b>	
CALPINE REGIOLE ENERGY CENTERS LLC	5,074
DOWN PIPELINE COMPANY	8,094
GULF COAST WATER AUTHORITY	58,836
KING BANCH TURFGRASS, L.P.	154
LORENA, CITY OF	152
MARLIN, CITY OF	722
ROCKWELL, CITY OF	1,549
NRG TEXAS, LLC	29,340
<b>SUBTOTAL:</b>	<b>105,142</b>
<b>LAKE AQUILLA</b>	
AQUILLA WATER SUPPLY DISTRICT	3,755
CLEBURNE, CITY OF	1,709
<b>SUBTOTAL:</b>	<b>4,464</b>
<b>LAKE PROCTOR</b>	
LAKE PROCTOR IRRIGATION AUTH.	1,070
UPPER LEON RIVER MUNICIPAL	2,895
<b>SUBTOTAL:</b>	<b>4,965</b>
<b>LEON RIVER BELOW LAKE PROCTOR</b>	
LAKE PROCTOR IRRIGATION AUTH.	672
NORTHER LEON RIVER IRRIGATION	3,493
<b>SUBTOTAL:</b>	<b>4,165</b>
<b>LAKE BELTON</b>	
43P WATER SUPPLY CORP.	326
BELL CO. WATER CONTROL & IMP.	30,608
BILBOUNNET WATER SUPPLY CORP.	3,087
CORVELL CITY WATER SUPPLY DIST.	300
FORT BATES WSC	288
GATESVILLE, CITY OF	4,803
THE GROVE WATER SUPPLY CORP.	158
<b>SUBTOTAL:</b>	<b>39,518</b>
<b>LEON RIVER BELOW LAKE BELTON</b>	
ALCOA, INC.	2,057
TEMPLE, CITY OF	8,963
INDUSTRIAL OWNERS CLUB, INC.	371
<b>SUBTOTAL:</b>	<b>11,391</b>
<b>LAKE STILLHOUSE HOLLOW</b>	
CENTRAL TEXAS WATER SUPPLY CORP.	3,947
COMMER WATER SUPPLY CORP.	3,211
LAMPASAS, CITY OF	1,840
<b>SUBTOTAL:</b>	<b>8,998</b>
<b>LAKE GEORGETOWN</b>	
BRISSAW GREEN MUD	2,980
GEORGETOWN, CITY OF	15,795
ROUND ROCK, CITY OF	20,797
<b>SUBTOTAL:</b>	<b>39,572</b>
<b>LAKE GRANGER</b>	
EAST WILLIAMSON CO. REGIONAL WATER SYSTEM	4,322
<b>NRG TEXAS, LLC</b>	
SIC WATER SUPPLY	138
TEXU - LUMINANT ELECTRIC COMPANY	36,846
<b>SUBTOTAL:</b>	<b>37,166</b>
<b>NAVAJOTA RIVER BELOW LAKE LIMESTONE</b>	
WET-BEYON SPECIAL UTILITY DIST.	1,063
<b>LAKE SOMERVILLE</b>	
BETHWELL, CITY OF	2,823
<b>TOTAL</b>	<b>284,268</b>

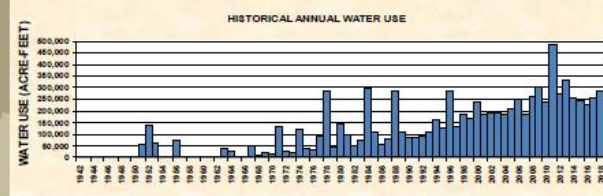
2018 TOTAL WATER USE  
284,268 Acre-Feet



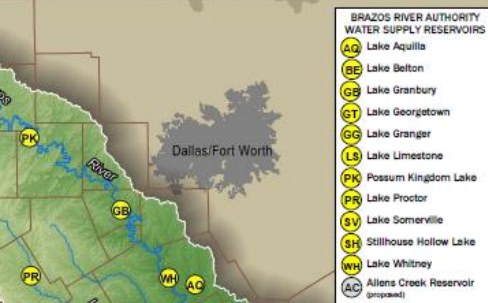
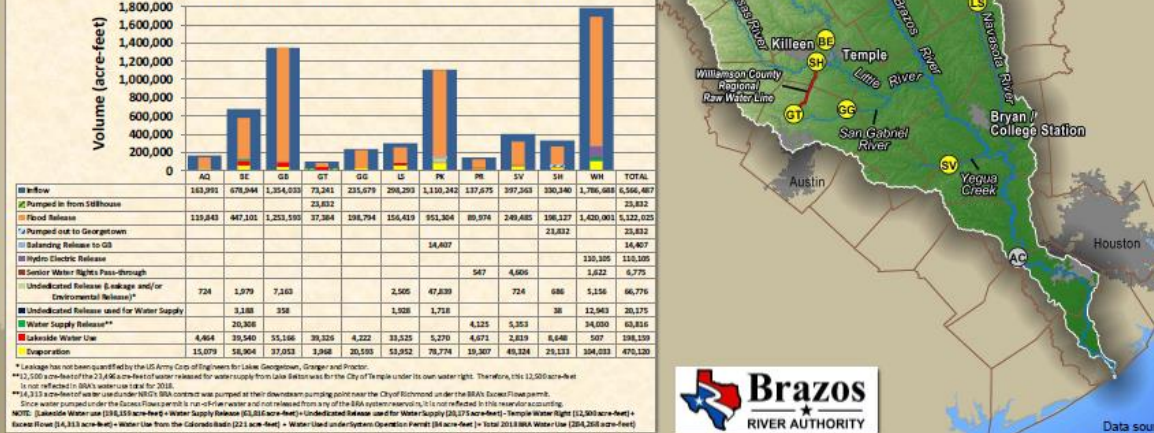
2018 WATER USE BY INTERRUPTIBLE AND LAKEBASE LOCAL CUSTOMERS FROM RESERVOIR WATER RIGHTS (ACRE-FEET)	VOLUME (ACRE-FEET)
<b>BRAT POSSUM KINGDOM LAKE</b>	
BRAT POSSUM KINGDOM LTD	5
HILL COUNTRY HARBOUR, L.P.	280
LAKESHORE HOME OWNERS	0.9
TOTAL PARKS & WILDLIFE DEPT.	6
WACO BEND RANCH, LTD	11
LAKESIDE LOCAL USE	256
WEST CENTRAL BRAZOS PIPELINE	354
<b>SUBTOTAL:</b>	<b>903</b>
<b>LAKE GRANBURY</b>	
LENAID, INC.	8
LAKESIDE LOCAL USE	338
THOMAS BRDS GRASS, LLC	54
<b>SUBTOTAL:</b>	<b>399</b>
<b>BRAZOS RIVER BELOW LAKE GRANBURY</b>	
EOG RESOURCES INC. WESTERN DIV	39
INGRAM CONCRETE, LLC	116
LATIMORE MATERIALS	300
RYAN HOUSTON	524
<b>SUBTOTAL:</b>	<b>979</b>
<b>LAKE WHITNEY</b>	
DOUBLE DIAMOND PROPERTIES, INC	392
WHITE BLUFF PROPERTY OWNERS ASSOC	300
LAKESIDE LOCAL USE	2
<b>SUBTOTAL:</b>	<b>694</b>
<b>BRAZOS RIVER BELOW LAKE WHITNEY</b>	
S-D FARM	822
BIG CREEK CONSTRUCTION	238
JAMES S. BOYD	35
BRAZOS FARM LTD., INC.	349
BURLESON WATER RESOURCES, LLC	1,196
COOP MILLER	112
CREEKSIDE NURSERY, LLC	49
FAZZINO FARMS JOINT VENTURE	4,927
GULF COAST WATER AUTHORITY	399
HORIZON TURF GRASS, INC.	300
KNIFE RIVER CORPORATION	190
NOTELA FARM	270
NEHAUS TRUSTS PARTNERSHIP	683
MARCEK LAND & CATTLE, LLC	1,652
TRADINGSTON ENERGY PARTNERS OPERATING, LLC	292
VULCAN CONSTRUCTION MATERIALS, L.P.	368
<b>SUBTOTAL:</b>	<b>11,089</b>
<b>LAKE PROCTOR</b>	
SEARS BROTHERS	327
<b>LAKE BELTON</b>	
LAKESIDE LOCAL USE	2
<b>LITTLE RIVER BELOW LAKE BELTON</b>	
AARON MATTHEWS	61
ALCOA, INC.	343
CURT FARM	4
DEAN F. AMICKA	127
KACR WHEELER, LLC	4
<b>SUBTOTAL:</b>	<b>580</b>
<b>LAMPASAS RIVER BELOW LAKE STILLHOUSE HOLLOW</b>	
LAMPASAS RIVER BELOW LAKE LIMESTONE	96
<b>LAKE LIMESTONE</b>	
LAKESIDE LOCAL USE	96
<b>NAVAJOTA RIVER BELOW LAKE LIMESTONE</b>	
HAWWOOD ENERGY OPERATING, LLC	307
<b>TOTAL</b>	<b>14,286</b>

2018 WATER USE FROM THE COLORADO BASIN (ACRE-FEET)	VOLUME (ACRE-FEET)
<b>BRAZOS - COLORADO INTERBASIN TRANSFER</b>	
LIBERTY HILL, CITY OF	165
ROUND ROCK, CITY OF	56
<b>TOTAL</b>	<b>221</b>

2018 RUN-OF-RIVER WATER USE FROM THE SYSTEM OPERATION PERMIT (ACRE-FEET)	VOLUME (ACRE-FEET)
<b>BRAZOS - COLORADO INTERBASIN TRANSFER</b>	
LORENA, CITY OF	84
<b>TOTAL</b>	<b>84</b>



Brazos River Authority 2018 Reservoir Accounting (acre-feet)





# ***Legislative Update***

***Presented by  
Matt Phillips***

***Legislative and Government Affairs  
Manager***



## ***Flood Bills***

- **HB 26-Dam release notification**
- **SB 6-Emergency mgmt. and debris removal**
- **SB 7-Funding programs for flood projects**
- **SB 8-State flood planning process**
- **HJR 4-Con Amend creating Flood Infrastructure Fund**



## ***Surface Water***

- **HB 723-Update of Water Availability Models**
- **HB 1964-Expedited water right amendments**



## ***Groundwater***

- **HB 720-Appropriation of water for ASR projects**
- **HB 721-ASR studies by TWDB**
- **HB 722-Development of brackish groundwater**
- **HB 1066-Extension of groundwater transfer permits**



## ***Allens Creek***

- **HB 2846-BRA buyout of Allens Creek Reservoir project**



# ***Environmental Stewardship***

***Presented by***

***Tiffany Morgan***

***Environmental and Compliance Manager***





# ***Water Quality, Stream Geomorphology, and Biological Community Monitoring***

- **Clean Rivers Program**
- **Assessment for compliance with state regulations**
- **Identification of issues and sources**





# Water Quality and Environmental Flow Standards Validation/Verification Studies

- Environmental Flow Standards – 9 locations
- Water Quality
  - Bacteria
  - Dissolved Oxygen
  - Algae
  - Temperature

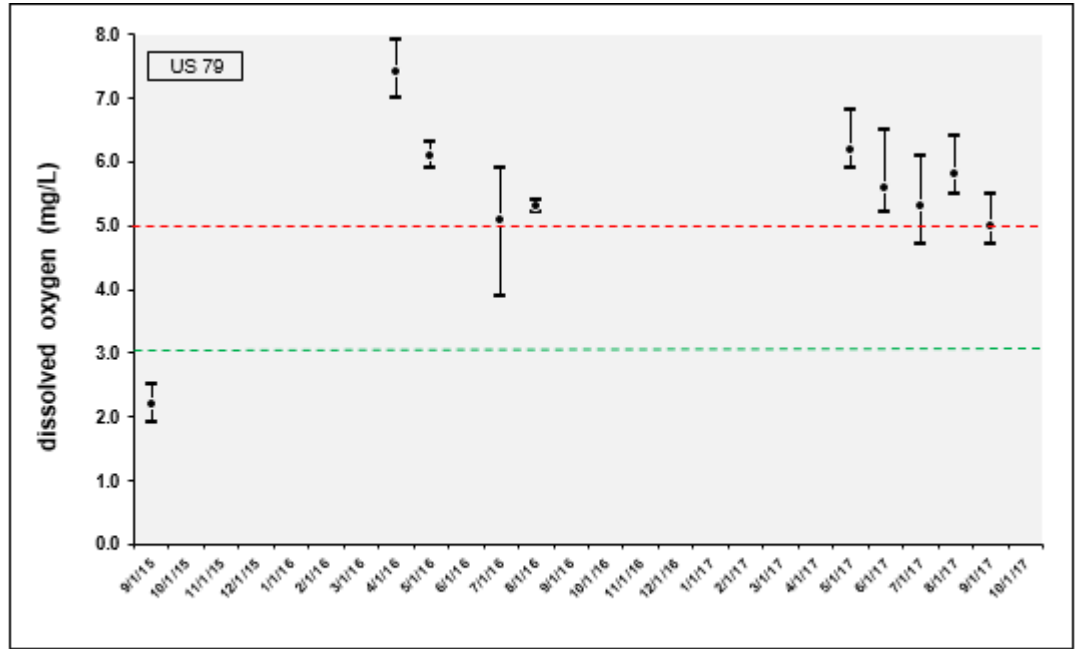
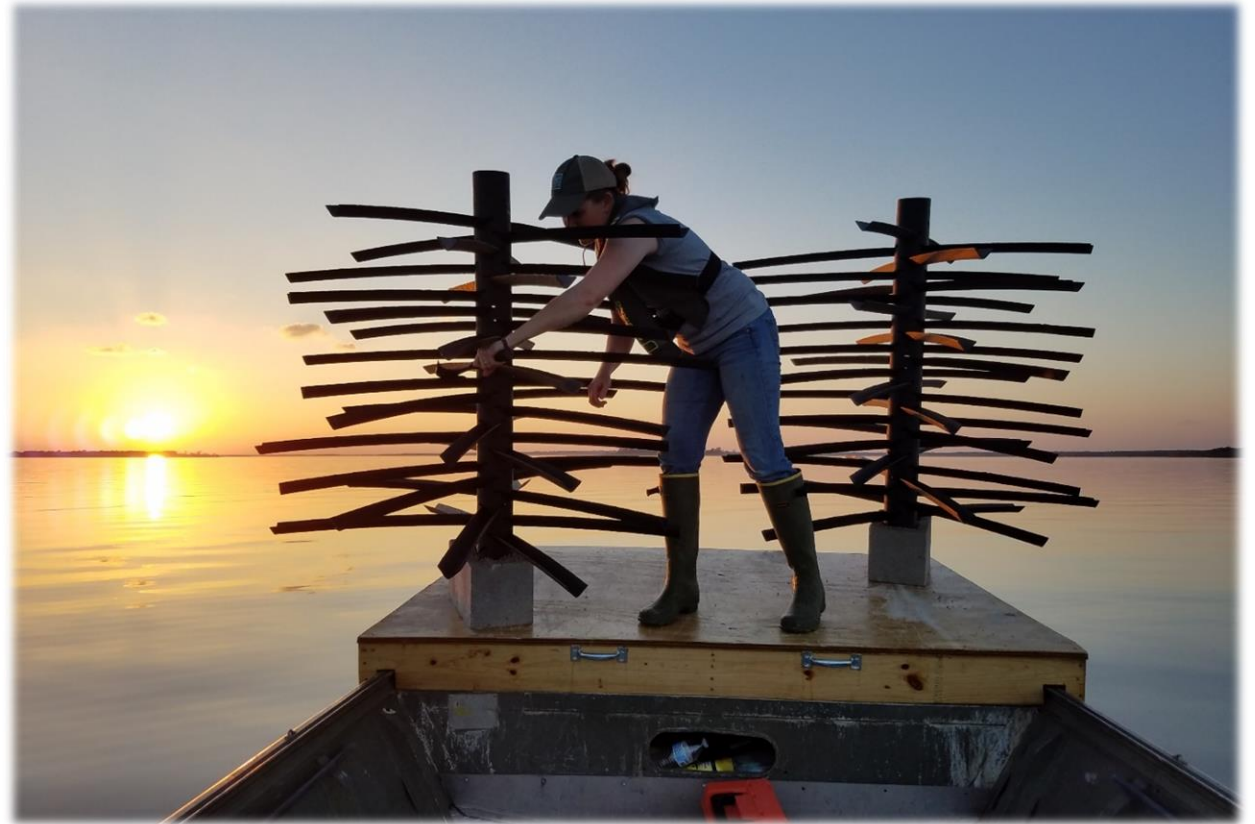


Figure 6. 24-hr. DO ranges and means for the two ALA study sites on Duck Creek, 2015-17. Green line = 24-hr. minimum criterion. Red line = 24-hr. average criterion. (Criteria based on perennial flow presumption.)



# *Reservoir Fisheries Habitat Improvement*

- Increase drought resiliency of reservoir fisheries
- Three reservoirs a year
- Partner with TPWD





# ***Threatened and Endangered Species Monitoring***

- **Both federal and state listed species**
- **Freshwater mussels**
- **Brazos water snake**
- **Small eye and sharpnose shiners**





# *Invasive Species Monitoring*

- **Streams and reservoirs**
- **Coordinate with TPWD**
- **Zebra Mussels**
- **Plants**



# Issue Specific Water Quality Studies

- Lake Granbury Watershed Protection Plan (WPP)
- Leon River WPP
- Lake Somerville pH Investigation
- Golden Algae Control Study
- Brazos/Navasota Watershed Management Project

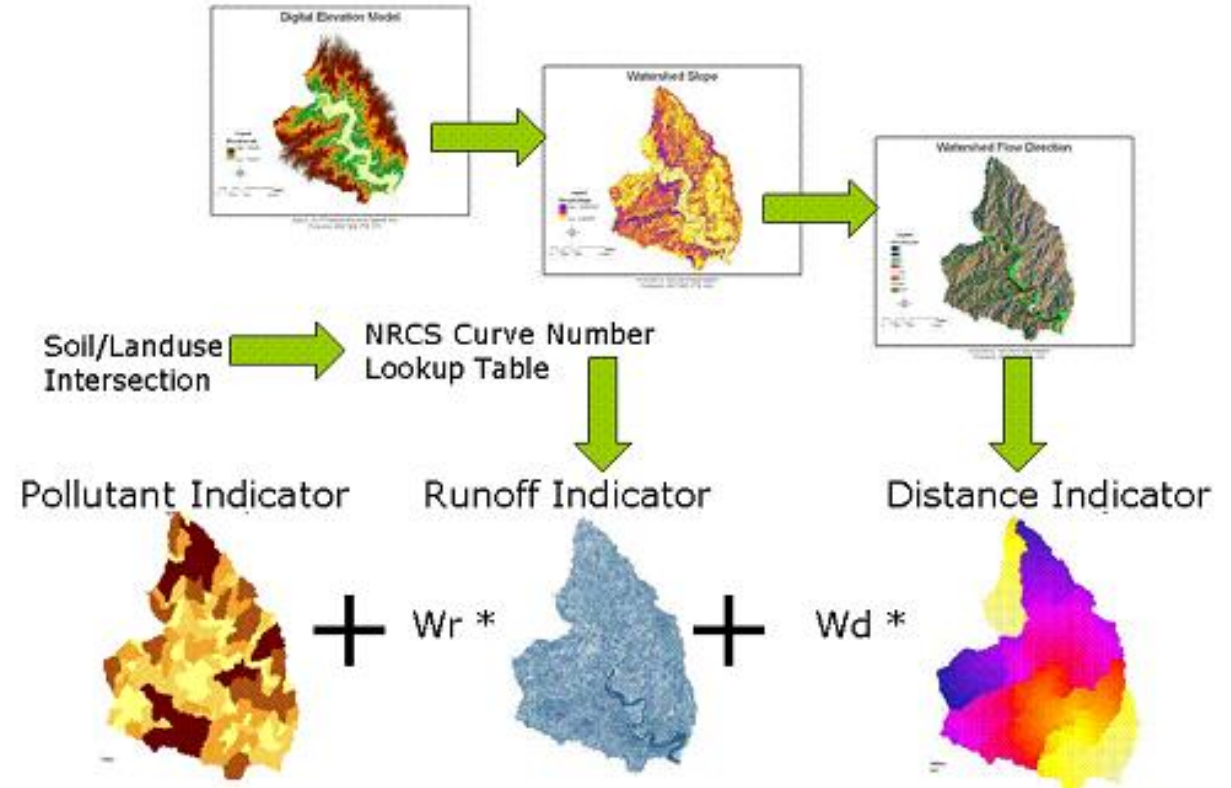


Figure 25. Spatial and Hydrologic Processes to Determine the Pollutant Connectivity Factor (PCF).



# ***Support Law Enforcement and Other State Agencies***

- **Fish Kills**
- **Chemical Spills**
- **Illegal dumping and discharge**
- **Stormwater Construction Issues**
- **Suspected illicit activity discharges**





# ***Environmental Support and Permitting for BRA Facilities and Projects***

- **Statistical data analysis**
- **404 Permits**
- **Wetland Delineations**
- **Asbestos/Lead Paint remediation**
- **TPDES Permits**
- **Stormwater Construction Permitting**
- **Aquatic Life Relocations**
- **Archeological Reviews**







## ***Issues and Concerns***

- **Balancing competing interests**
- **Population growth**
- **Nutrient regulations**
- **Climate variability**
- **Destruction of riparian vegetation**
- **Rushed science and regulations**
- **Consensus and advocated based decisions over science**



# ***Financial Overview***

***Presented by  
David Thompson  
Chief Financial Officer***



# BRA Business Model

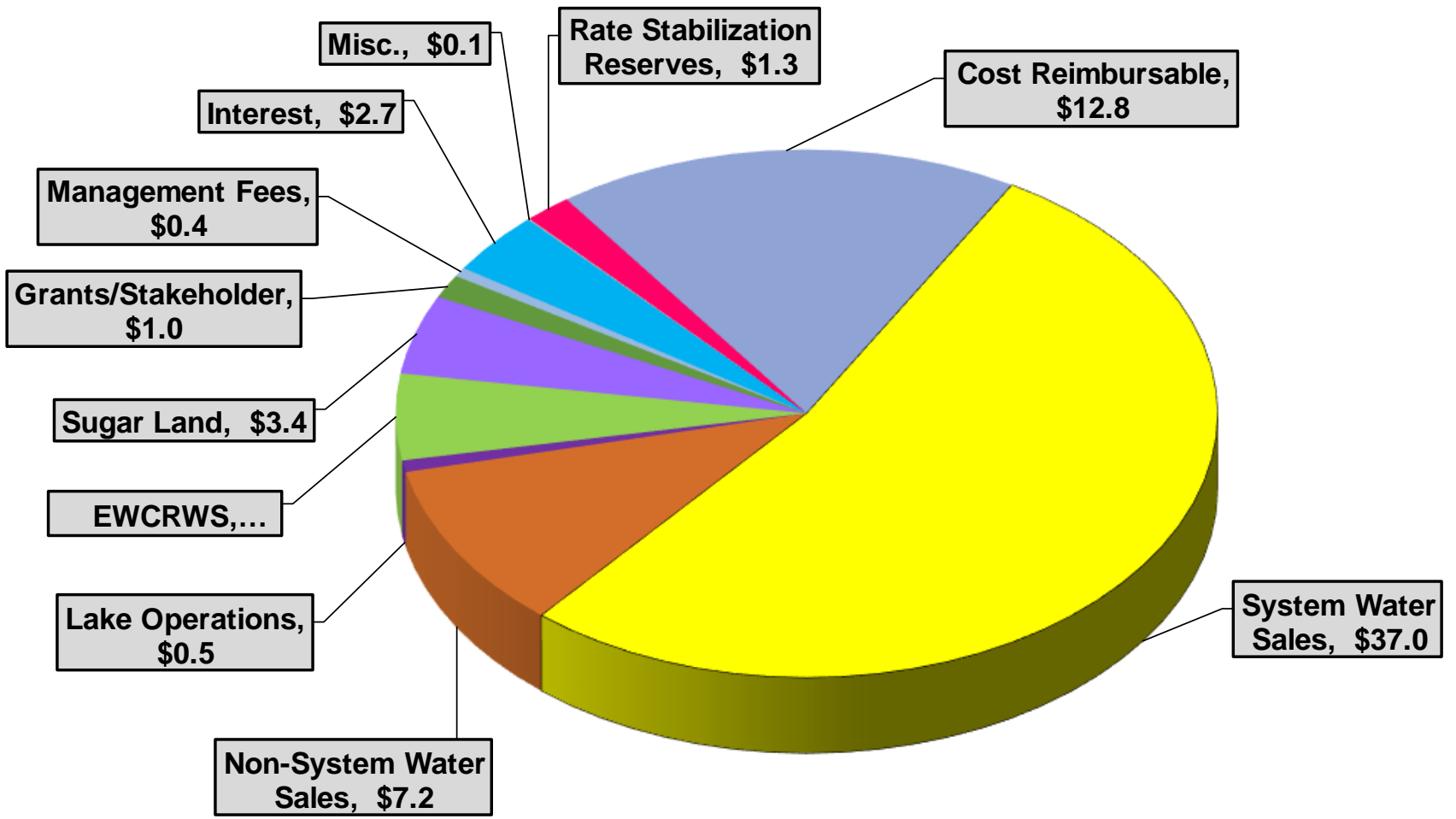
## Elements of Ratemaking

	FY 19 Budget (in 000's)	FY 20 Budget (in 000's)
<b>Water Supply Expenses</b>		
Water Supply O&M Expenditures	\$39,517	\$42,729
Water Supply Debt Service (subject to coverage)	\$2,538	\$2,534
Water Supply Debt Service (not subject to coverage)	\$2,475	\$3,770
Operating Project Expenditures	\$2,197	\$7,243
<b>Total Water Supply Expenses</b>	<b>\$46,727</b>	<b>\$56,276</b>
<b>Non-System Water Rate Revenues</b>		
Non-System Water Revenues	(\$6,965)	(\$7,167)
Other Water Supply Revenues	(\$10,264)	(\$11,627)
<b>Total Non-System Water Rate Revenues</b>	<b>(\$17,229)</b>	<b>(\$18,794)</b>
<b>Debt Coverage Requirement (1.3 ratio)</b>	<b>\$762</b>	<b>\$760</b>
<b>Gross Financial Requirement</b>	<b>\$30,260</b>	<b>\$38,242</b>
<b>Total System Water Billing Units (acre feet)</b>	<b>371,712</b>	<b>467,974</b>
<b>Calculated System Rate (Gross Financial Requirement/Number of System Rate Units)</b>	<b><u>\$81.50</u></b>	<b><u>\$81.80</u></b>
<b>Rate Stabilization Reserve Contribution</b>	<b>(\$1,825)</b>	<b>(\$1,300)</b>
<b>Net Financial Requirement (Gross Financial Requirement less Rate Stabilization Fund Contribution)</b>	<b>\$28,435</b>	<b>\$36,942</b>
<b>Effective System Rate (Net Financial Requirement/Number of System Rate Units)</b>	<b><u>\$76.50</u></b>	<b><u>\$79.00</u></b>



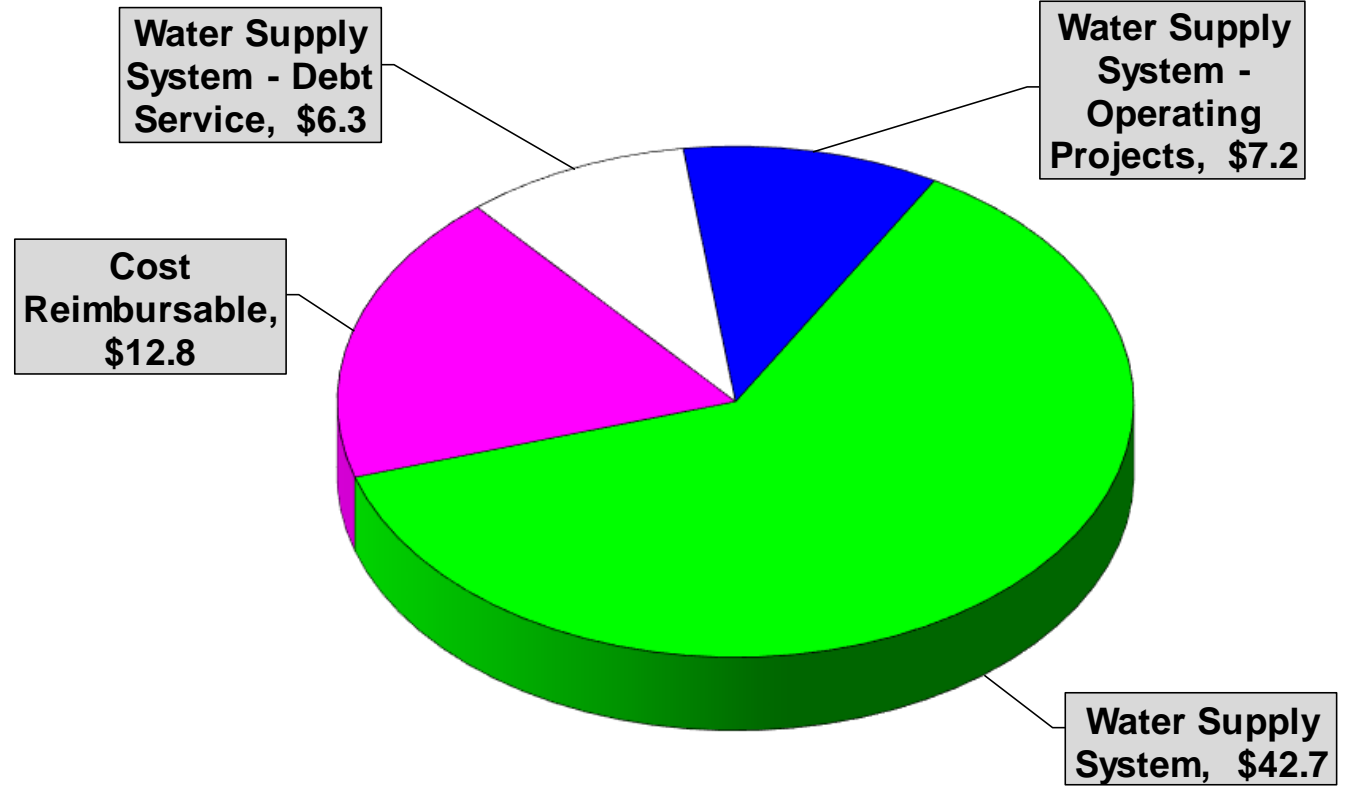
# ***FY2020 Proposed Revenues***

## ***\$70.1M***





# ***FY2020 Proposed Operating Expenses \$69.0M***





**FY2020 Proposed Operating Projects**  
*(in thousands)*

<u>Project Name</u>	<u>FY2020 Projected Expenditures</u>	
PK Concrete Assessment & Service Life Extension	\$	1,350
Security and Vulnerability Assessment Updates		595
Integrated Water Resources Plan		510
Risk Based Capital Planning & Mgmt. Support		469
USFWS Mussel Studies		460
Lake Limestone Fiber Optic Cable Upgrade		360
Enterprise Financial Software		336
Lake Whitney Reallocation Study		297
Possum Kingdom Recreational Facilities		280
PK Red Bluff Bridge Repair		274
LL Stilling Basin Dewatering Design & Construction		266
PK Village/Observation Point Chip Seal		265
Engineering Support for Technical Evaluations		250
Potential Future Water Mgmt Strategies		225
Facility Safety & Systems Support		213
Brazos Water Snake Study		200
Williamson County Aquifer Storage & Recovery *		200
PK Fiber Optic Cable Upgrade		200
EWC Fiber Optic Cable Upgrade		150
HB 1437 No Net Loss *		80
Downstream Riparian Restoration		76
Brazos River Alluvium Study		50
LG Tainter Gate Evaluation		50
PK Operating Pier Trash Rack Replacement		46
COE Pool Rise Feasibility Study		41
	\$	7,243
Less Grant/Stakeholder Funding *		(140)
Net BRA Expense	\$	7,103

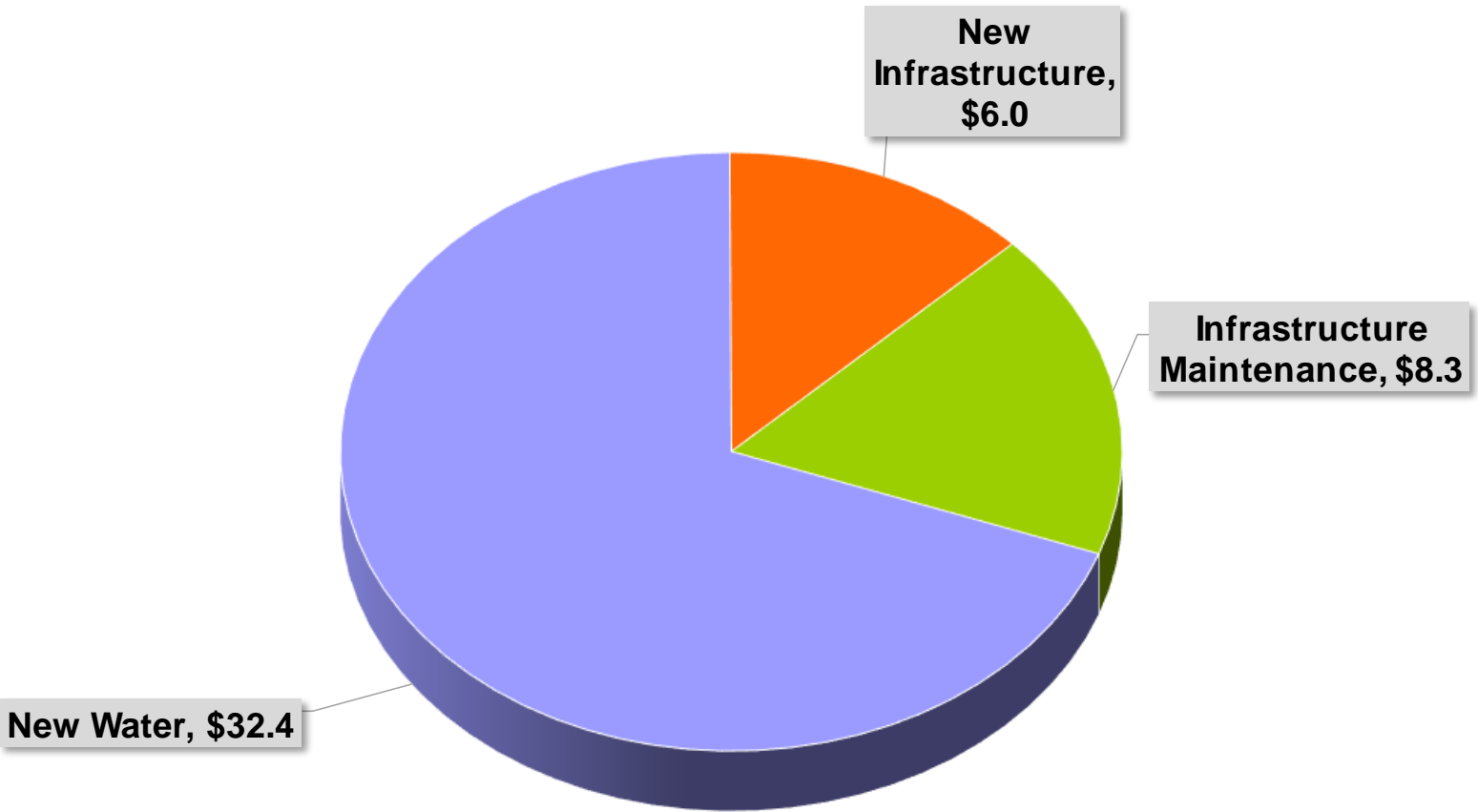


## ***Water Supply Costs***

- **COE costs (O&M and debt service) budgeted for FY 2020 are \$8.2 million and that is about \$17.80/AF for the system rate.**



# ***FY2020 Proposed Capital Improvement Projects by Type \$46.7M***







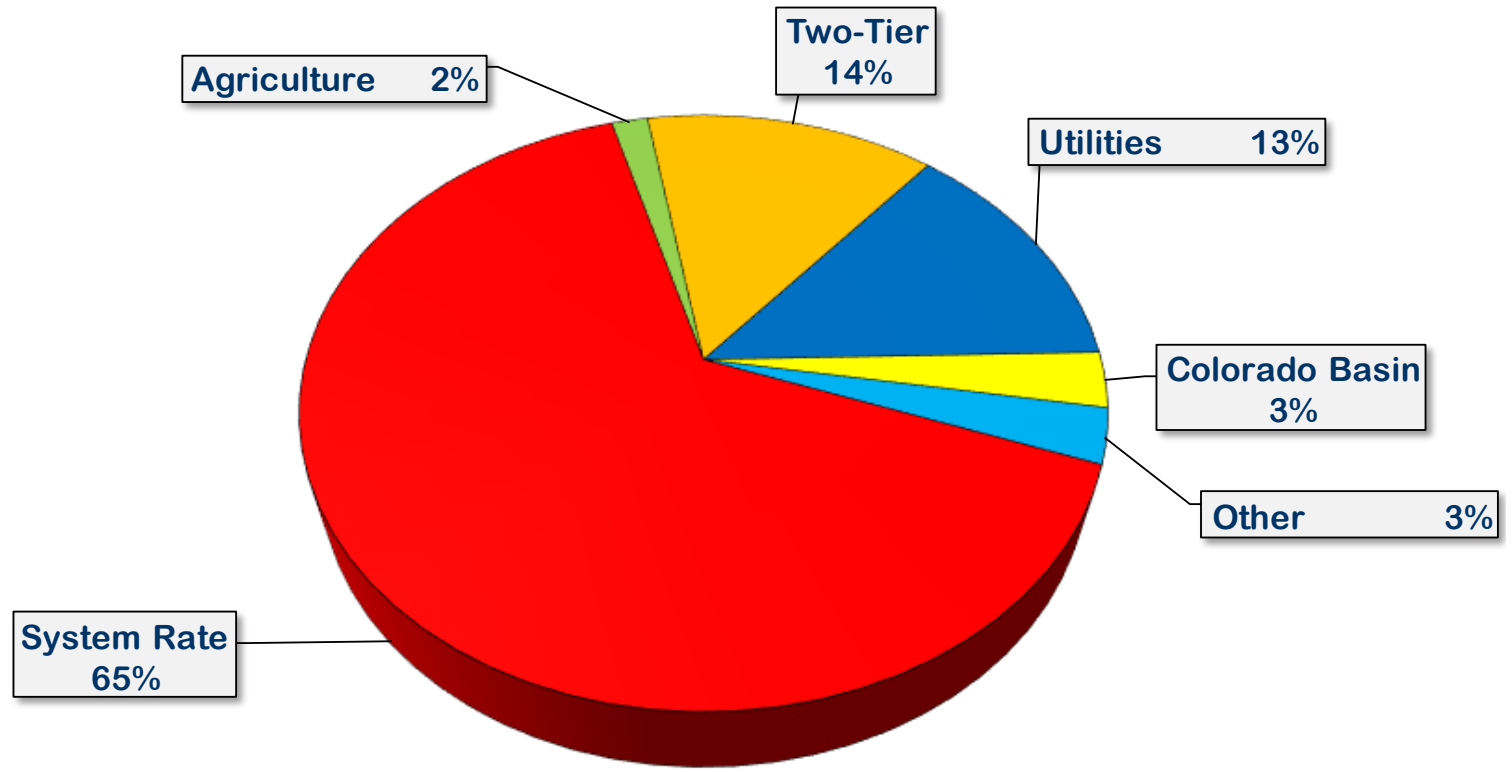
# ***FY2020 Proposed Capital Improvement Projects***

*(in thousands)*

<u>Project Name</u>	<u>Total Project Cost</u>	<u>FY2020 Projected Expenditures</u>	<u>Est. Completion Date</u>
UB-LG-Low Flow Facilities	\$ 4,470	\$ 734	2021
UB-LG-Reinforced Concrete Components	1,273	635	2021
UB-LG Trolley Replacement	2,648	1,394	2021
UB-PK-Bay #9 Weir Box	429	329	2020
UB-PK-COC Access Platforms	592	51	2020
UB-PK-Southside Boathouse	479	404	2020
UB-PK-Spillway Pump & Piping	605	380	2021
UB-PK-Spillway Gate Actuators	1,896	869	2021
CB-BE-Lake Belton-Stillhouse Pipeline	33,325	2,764	2024+
CB-EW-EWCRWS Expansion Phase 2	15,216	1,036	2024+
CB-OT-Trinity Groundwater	23,498	2,040	2024+
LB-AC-Allens Creek	427,897	30,359	2024+
LB-LL-Embankment Hydrostatic Relief	3,575	418	2023
LB-LL-Low Flow Facility Modifications	20,070	51	2024+
LB-LL-Park 5 Access Pier	877	877	2020
LB-LL-Tainter Gate Replacement	35,660	3,906	2023
CO-ES-Environmental Services Building	3,993	443	2022
<b>Total</b>		<b>\$ 46,690</b>	



# ***FY2020 Long Term Raw Water Sales 719,222 AF***





# ***Long Term Billing Units & Average Price***

	<b>FY2019</b>			<b>FY2020</b>		
	<b>Avg</b>			<b>Avg</b>		
	<b>Units</b>	<b>Price</b>	<b>%</b>	<b>Units</b>	<b>Price</b>	<b>%</b>
<b>System Rate</b>	<b>371,712</b>	<b>\$76.50</b>	<b>59%</b>	<b>467,974</b>	<b>\$79.00</b>	<b>65%</b>
<b>Agricultural</b>	<b>10,285</b>	<b>\$53.55</b>	<b>2%</b>	<b>12,385</b>	<b>\$55.30</b>	<b>2%</b>
<b>Two-Tier</b>	<b>98,999</b>	<b>\$17.54</b>	<b>16%</b>	<b>98,999</b>	<b>\$17.89</b>	<b>14%</b>
<b>Other Fixed Price</b>	<b>33,778</b>	<b>\$19.06</b>	<b>5%</b>	<b>21,336</b>	<b>\$23.71</b>	<b>3%</b>
<b>Utilities</b>	<b>97,000</b>	<b>\$19.28</b>	<b>15%</b>	<b>97,000</b>	<b>\$19.28</b>	<b>13%</b>
<b>Colorado Basin</b>	<b>21,528</b>	<b>\$83.33</b>	<b>3%</b>	<b>21,528</b>	<b>\$83.33</b>	<b>3%</b>
	<b><u>633,302</u></b>		<b><u>100%</u></b>	<b><u>719,222</u></b>		<b><u>100%</u></b>

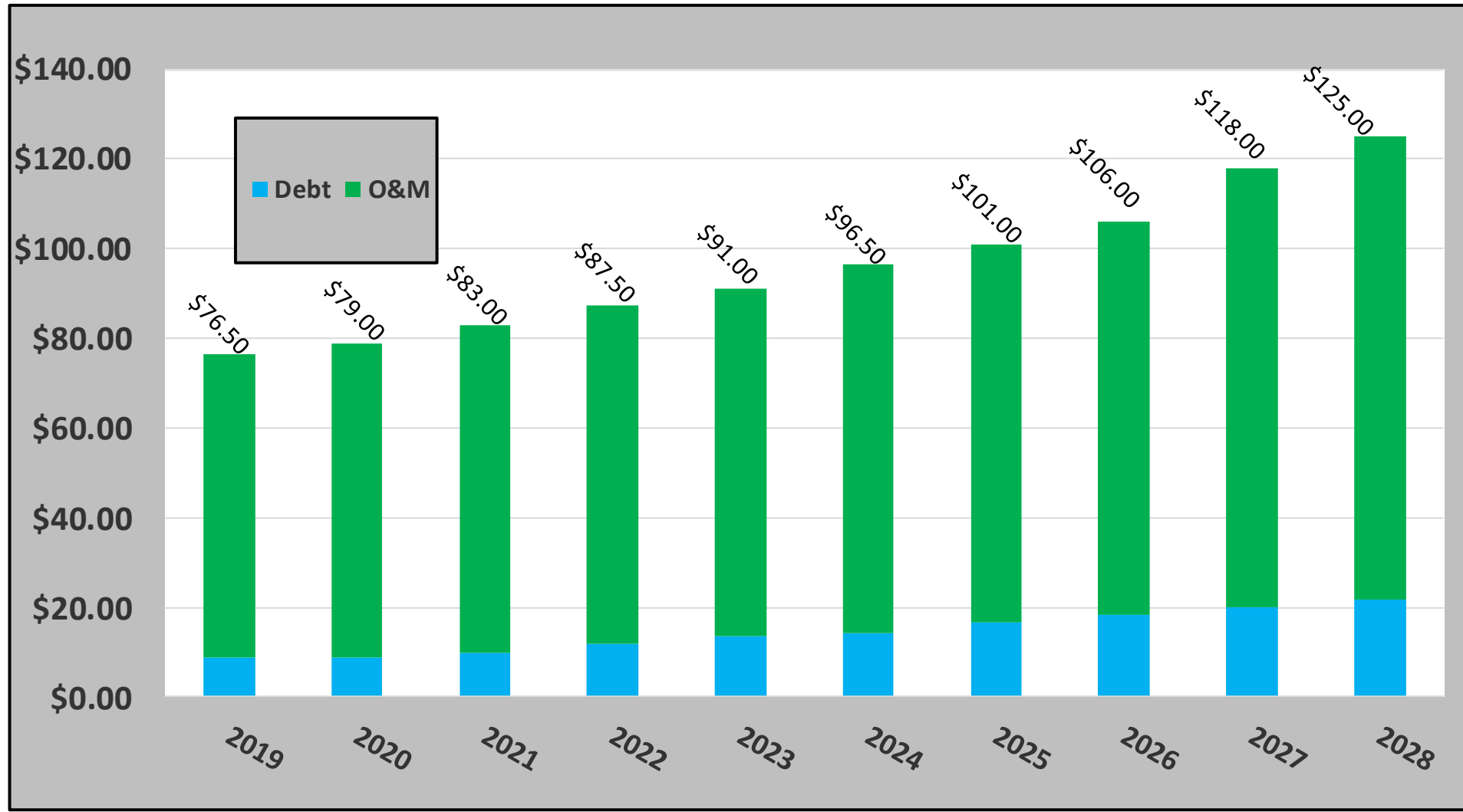


# ***Water Rates***

<b><u>System Rate</u></b>	<b>System Water</b>	<b>Agricultural Water</b>
<b>FY2020 Proposed</b>	<b>\$79.00/ac ft</b> (24.2¢ /1,000 gals)	<b>\$55.30/ac ft</b> (17.0¢ /1,000 gals)
<b>FY2019 Current</b>	<b>\$76.50/ac ft</b> (23.5¢ /1,000 gals)	<b>\$53.55/ac ft</b> (16.4¢ /1,000 gals)

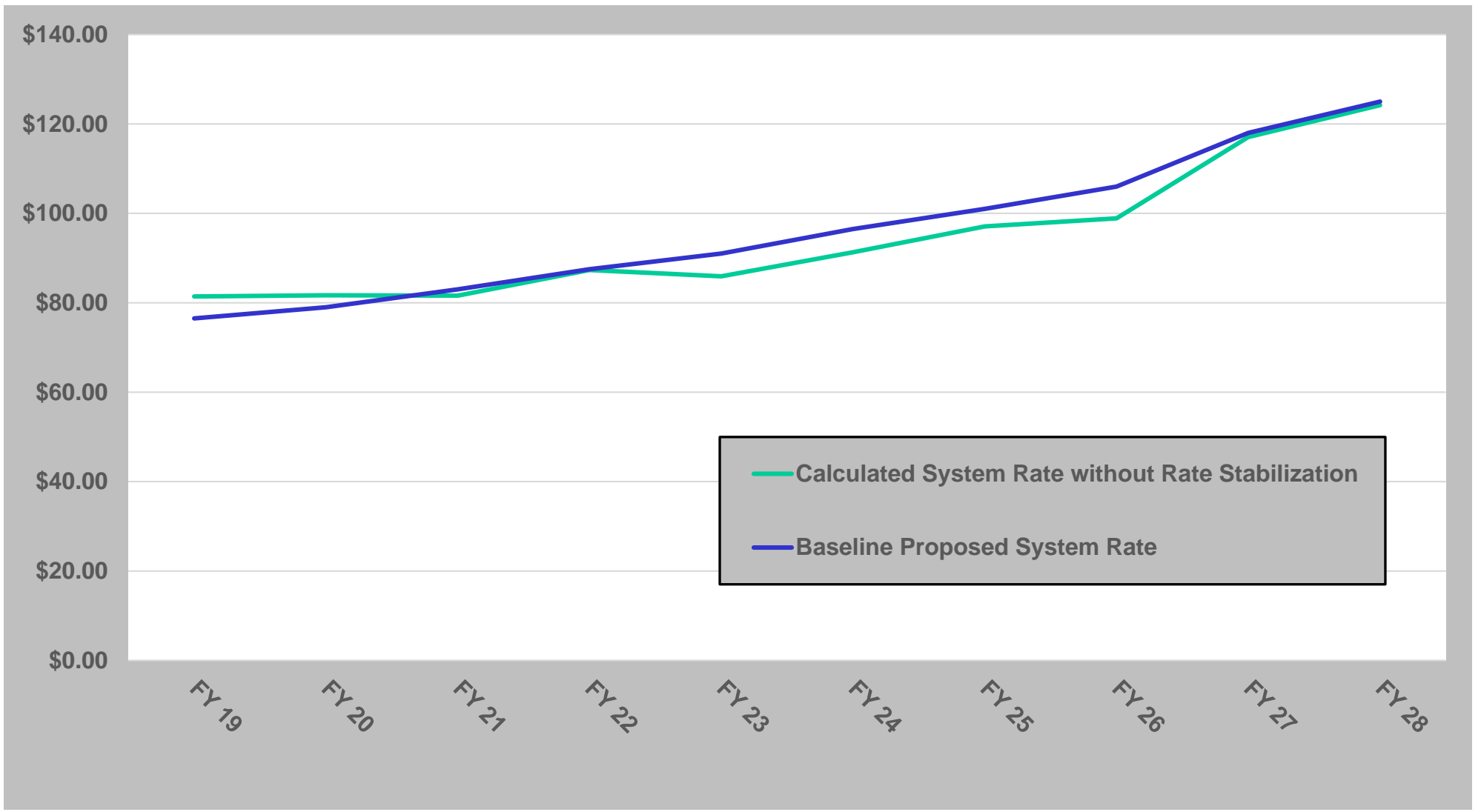


# System Rate Forecast





# Forecasted System Rate





## ***Interruptible Water Sales***

- **Priority to requests of 1,000 AF and less**
- **Application deadline is August 31**
- **Established firm deadline for payment and executing contracts**
- **Board to consider 2020 Interruptible Water in October**



# *Questions and Answers*

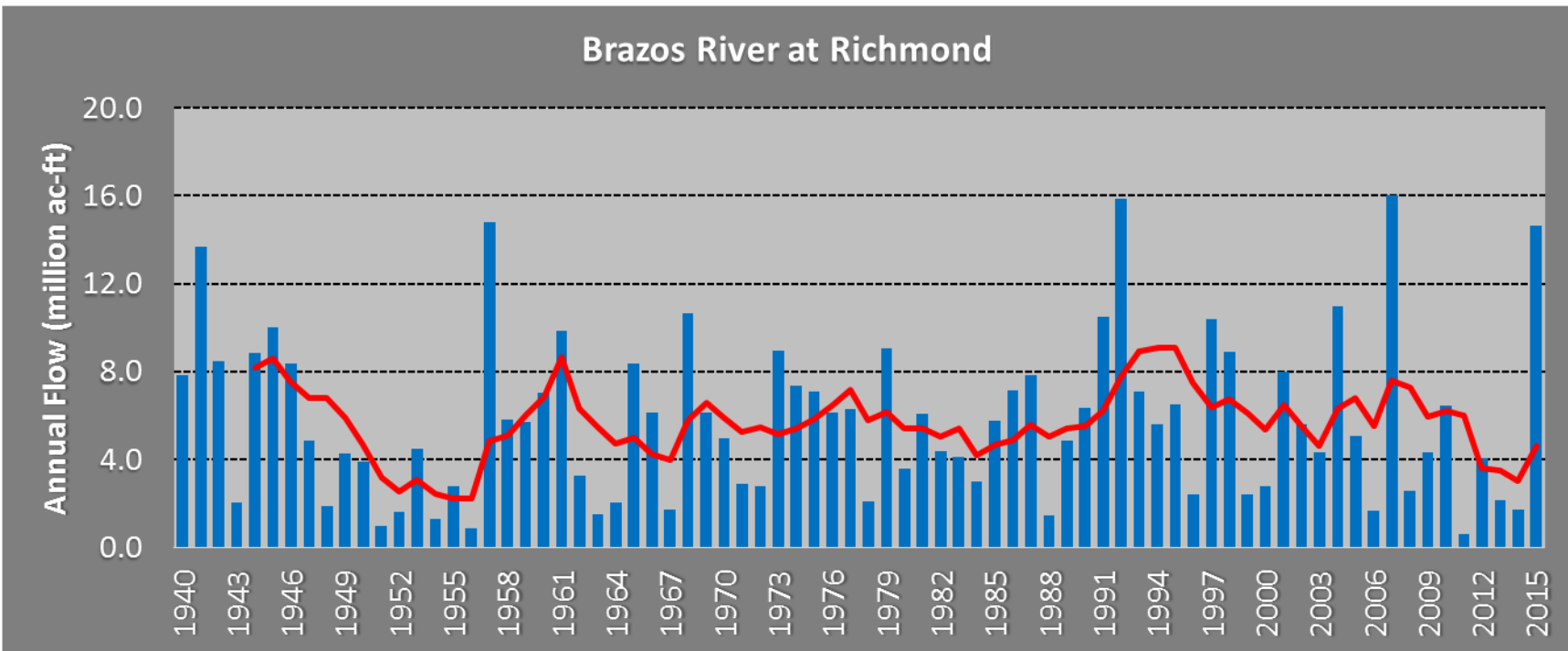
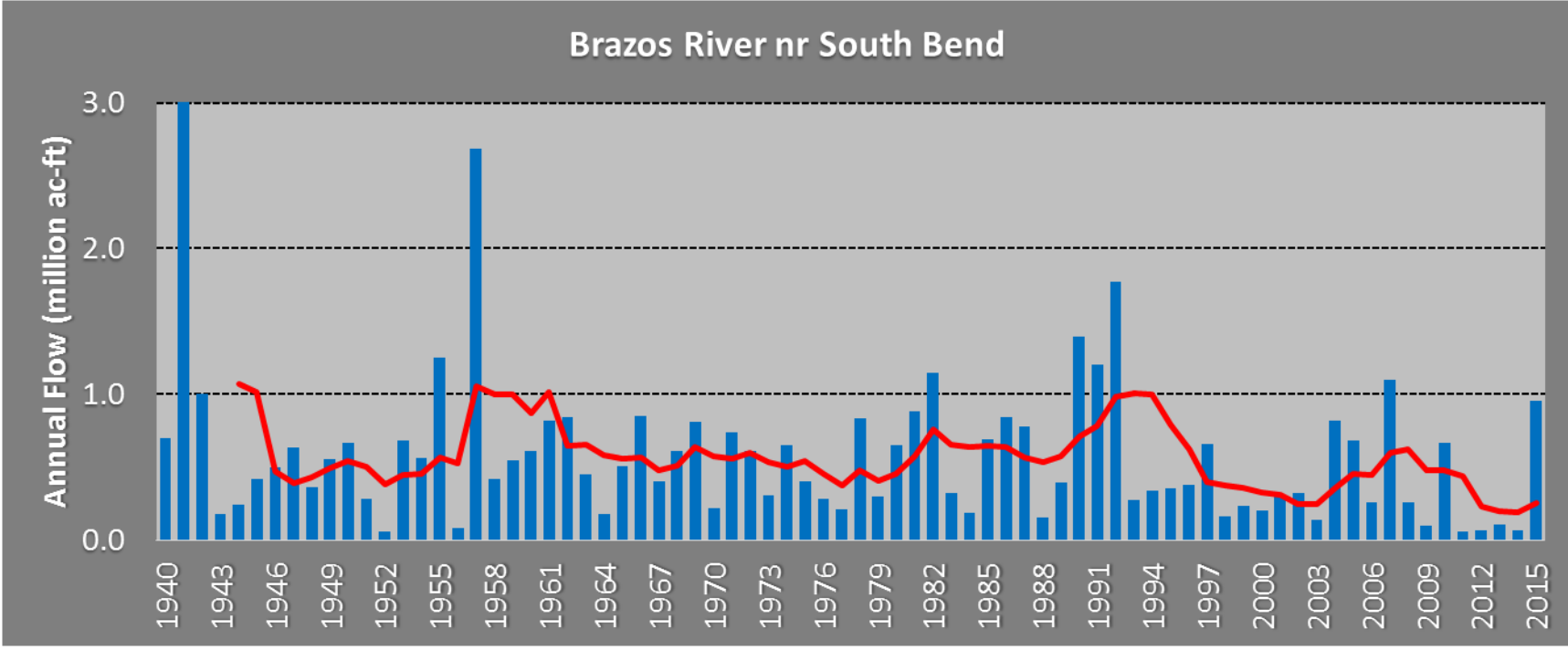


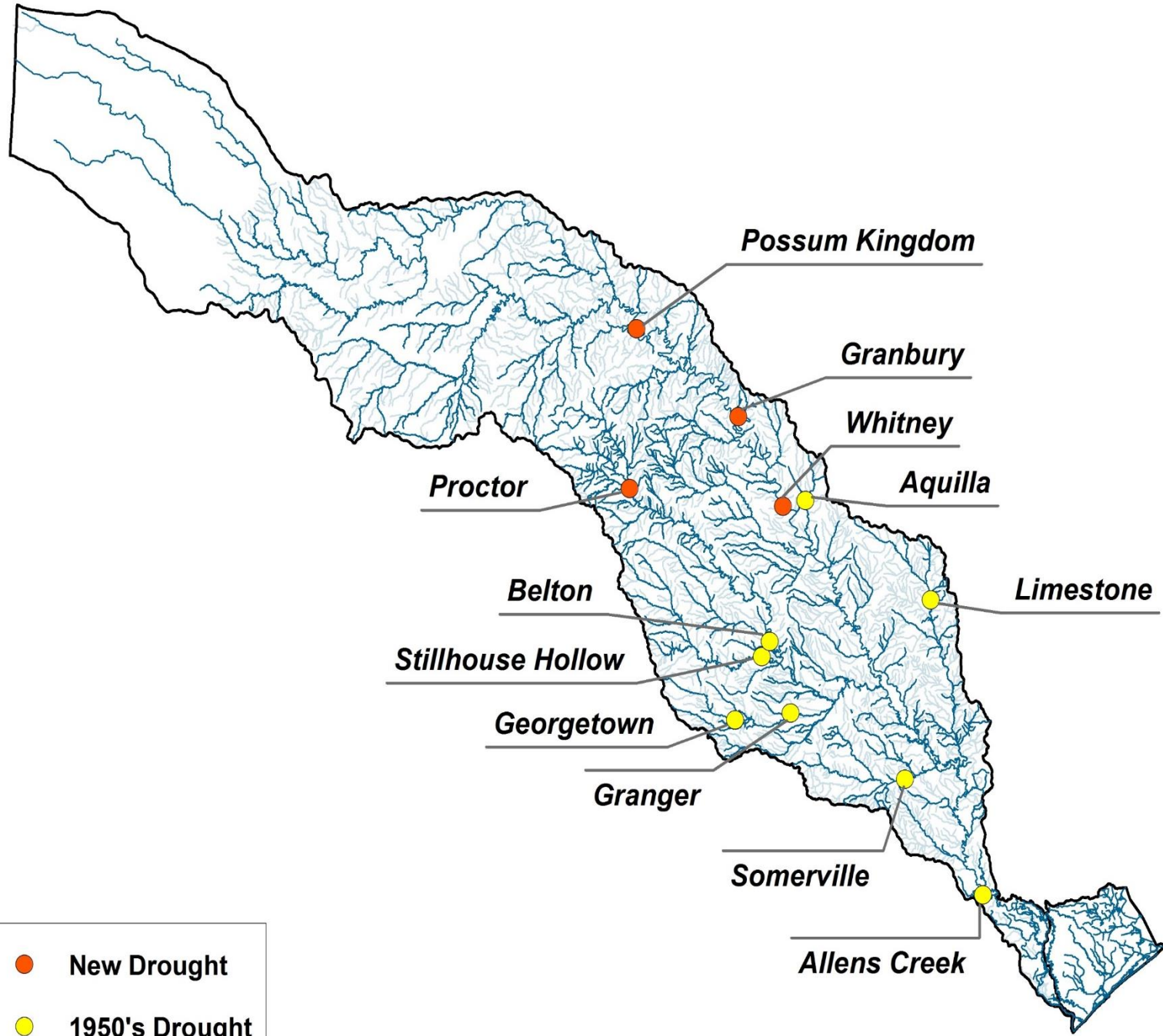


**Brazos**  
— ★ —  
**RIVER AUTHORITY**

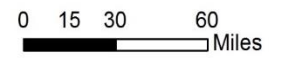


# Back-up Slides





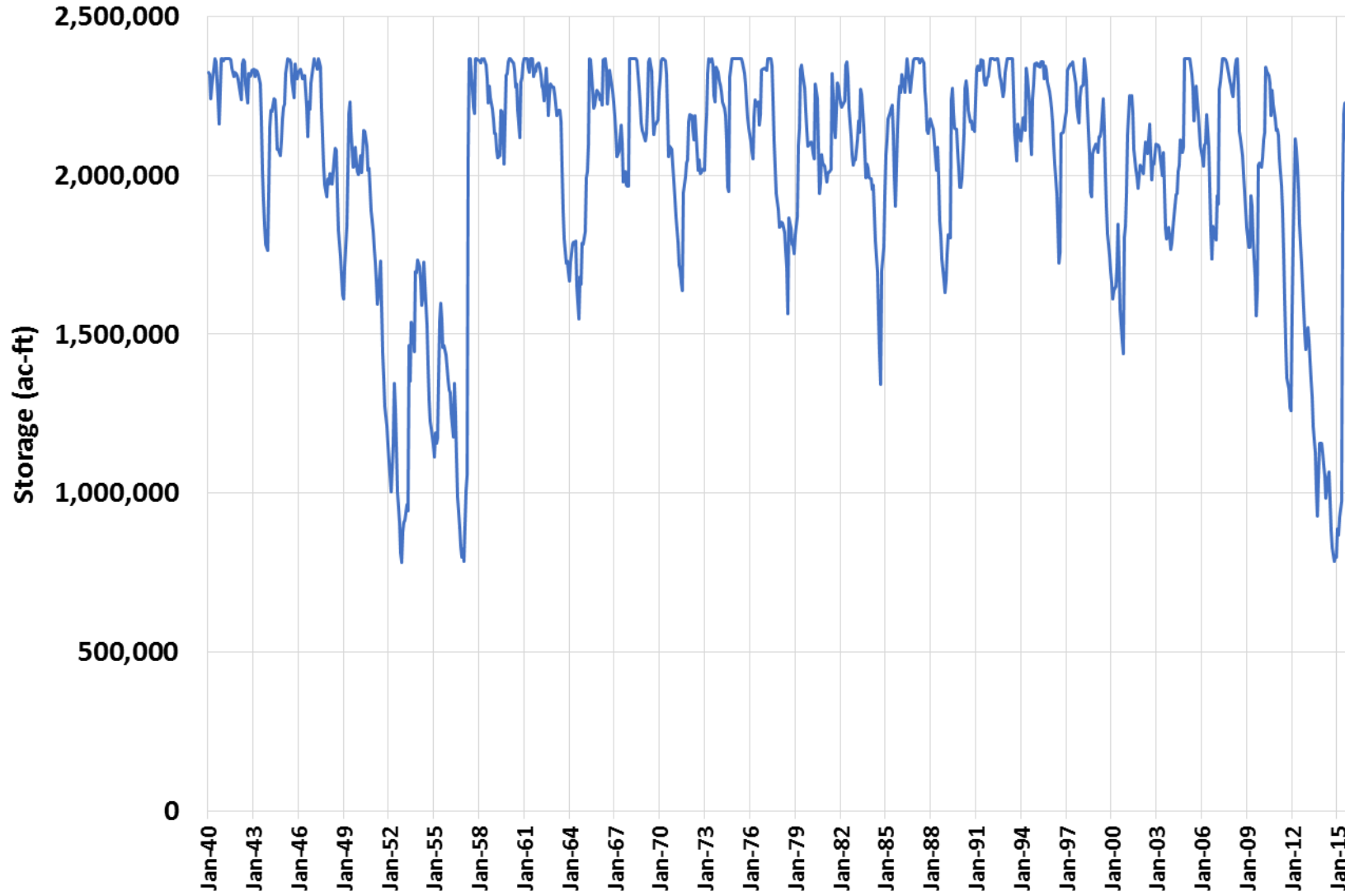
	<b>New Drought</b>
	<b>1950's Drought</b>



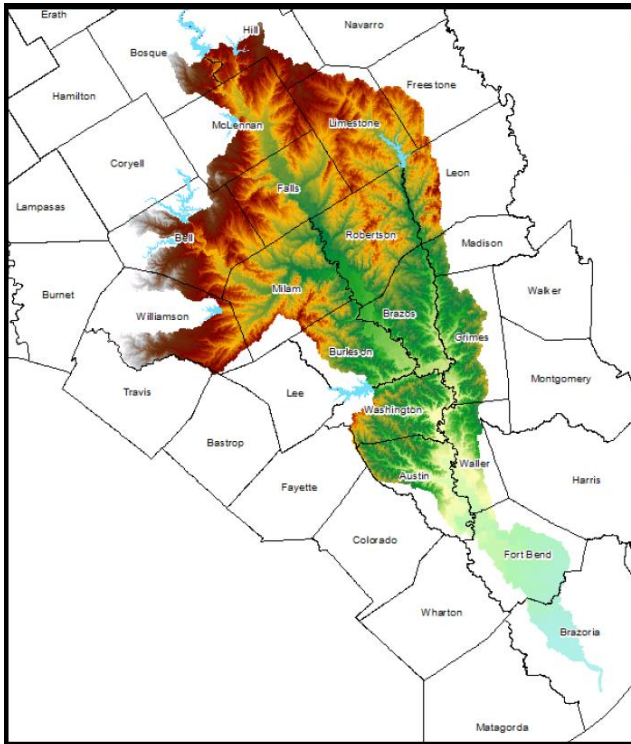


# ***Total Reservoir System Storage***

***(TCEQ WAM Run 3)***



# Lower Brazos Flood Protection Planning Study



\* Source: NASA Space Station Photo Posted on Twitter 5/28/2016



# Projected Reservoir Status for August 31, 2018 (based on normal inflows and normal evaporation)

