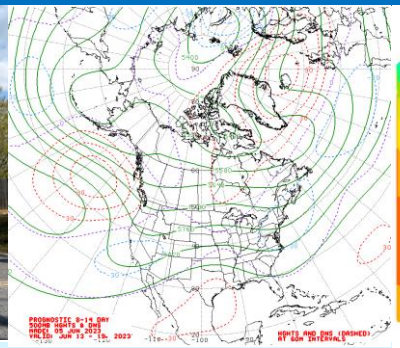
Summer 2023 Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region

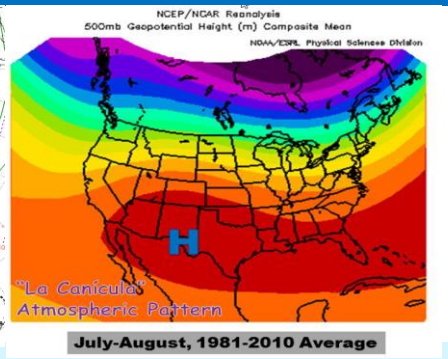
NATIONAL WEATHER SERVICE

June 6, 2023

Barry Goldsmith, NWS Brownsville/Rio Grande Valley, Texas

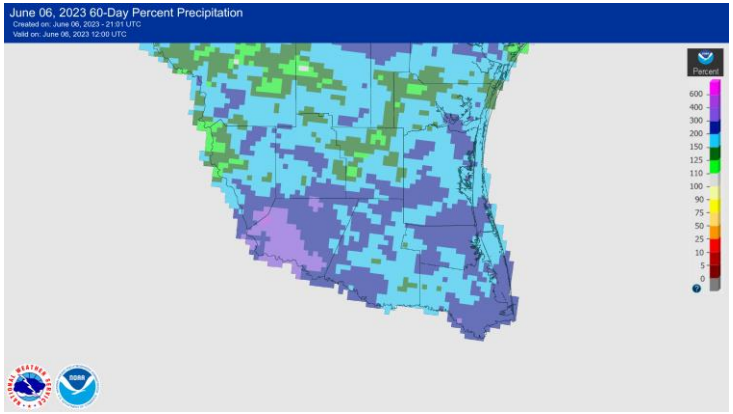
Hot Pattern Returns; Will Drought Follow?



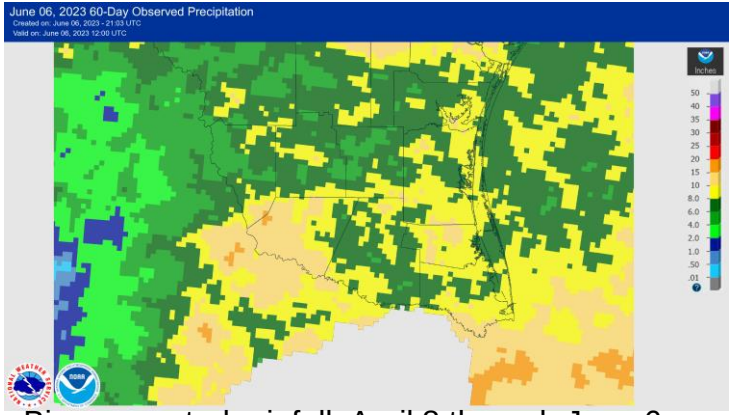


Since late April…

- The rains continued, but were joined by damaging winds and large hail on more than six severe weather “episodes” between April 21 and June 5, 2023.
- The severe episodes were punctuated by widespread wind damage, well over $50 million in property loss, and a deadly tornado in Laguna Heights
- Drought and Dryness for nearly all of the region was eliminated in May
- Despite the welcome rains that turned the Valley green in April through early June, Falcon and Amistad International Reservoirs remained low to very low to start summer
- Wildfire season ended in April, but grass and brush grew thick through early June, perhaps a harbinger of fuel loading to come in mid to late summer

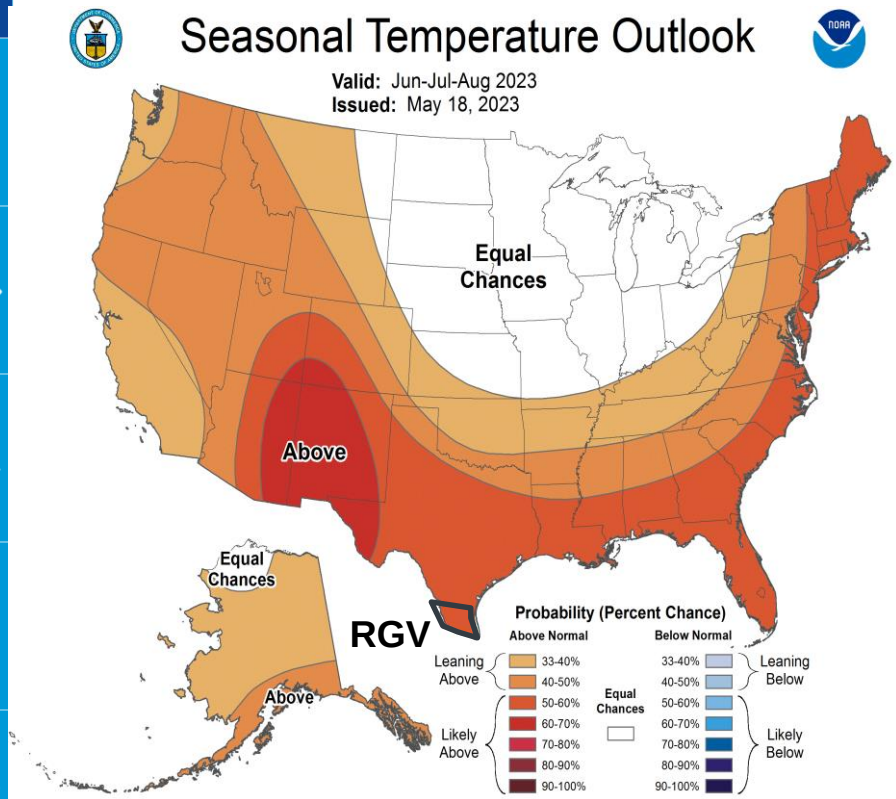


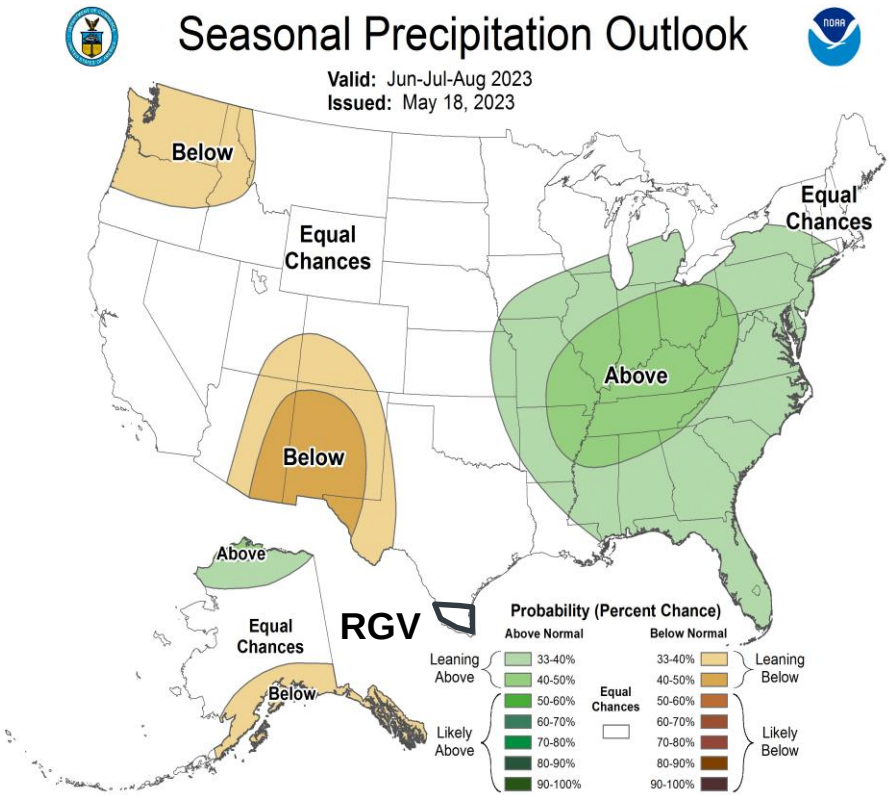
Departure from average rainfall, April 8 through June 6 (morning), 2023. 150-300 percent of average was common.



Bias-corrected rainfall, April 8 through June 6 (morning), 2023

Seasonal Forecast Summer 2023 - USA





Key Takeaways: Summer 2023

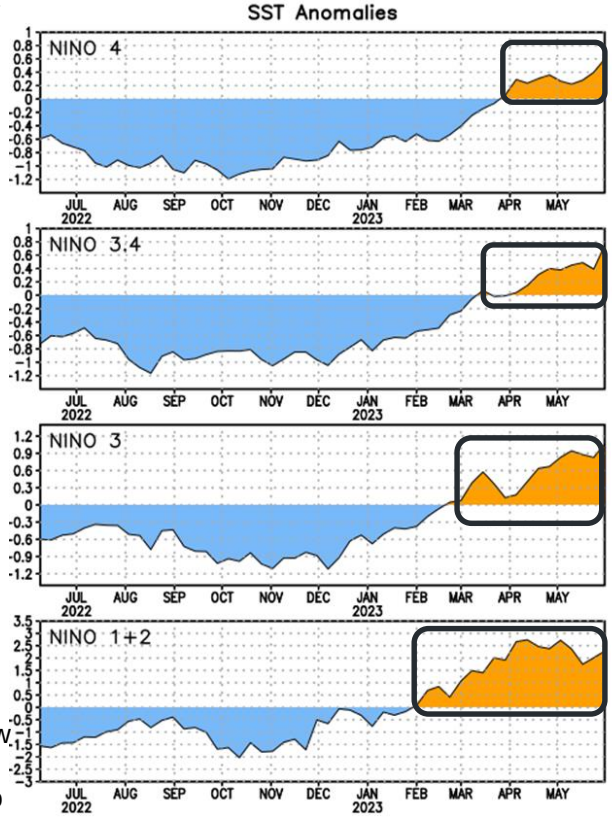
- ***Confidence is high*** on **hot weather to return and dominate** and return of dryness, but **medium** on the redevelopment of drought.
- Breakdown:
  - **Above average Heat** is favored for most of June through mid August. **Heat stress / illness** may become an issue if apparent temperatures reach above 110°F for long stretches in June through August.
  - The middle and end of June have seen early-season tropical waves and cyclones in the western Gulf. In 2017, Tropical Storm Cindy brought record late-June heat to the Valley; a year later, torrential rains flooded up to $200 million in property damage. **Be ready for extremes**, especially in late June.
  - Reservoir levels at Falcon and Amistad were above their multi-decade lows by early June, but still very low compared with long-term averages. The hot and generally dry forecast for the basin headwaters regio suggests higher than average evaporation rates through most of the summer.
  - The expected steady decrease in water storage levels may force **water conservation for some communities by July or August.**
  - Rapid wildfire growth will be in check through June, but a hot and dry July through mid August could require vigilance with ample new fuels which grew thick through spring. **Wildfire prevention actions may become necessary in July.**

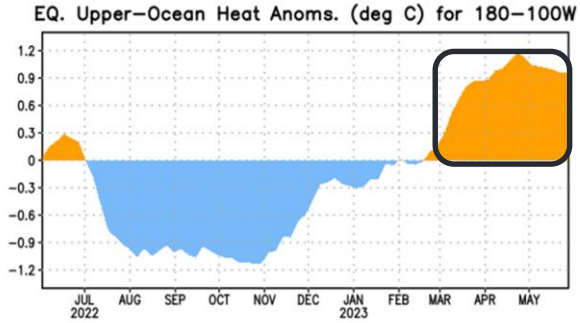
The "Why" of the Forecast: El Niño/Southern Oscillation (ENSO) into El Niño

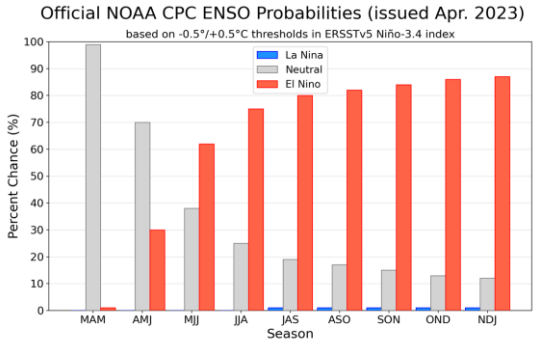
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8
2023	-0.7	-0.4	0.1									

- **El Niño conditions through early June** may being to have influence on background atmospheric patterns.
- The incoming El Niño combined with expected late spring- mid summer general atmospheric patterns and other "teleconnections" **leans toward hot and dry conditions from late June through at least mid August**
- El Niño is likely by mid summer and through the peak of the Hurricane season. Summer El Niños can **enhance heat/drought** here, as was the case in 2009.

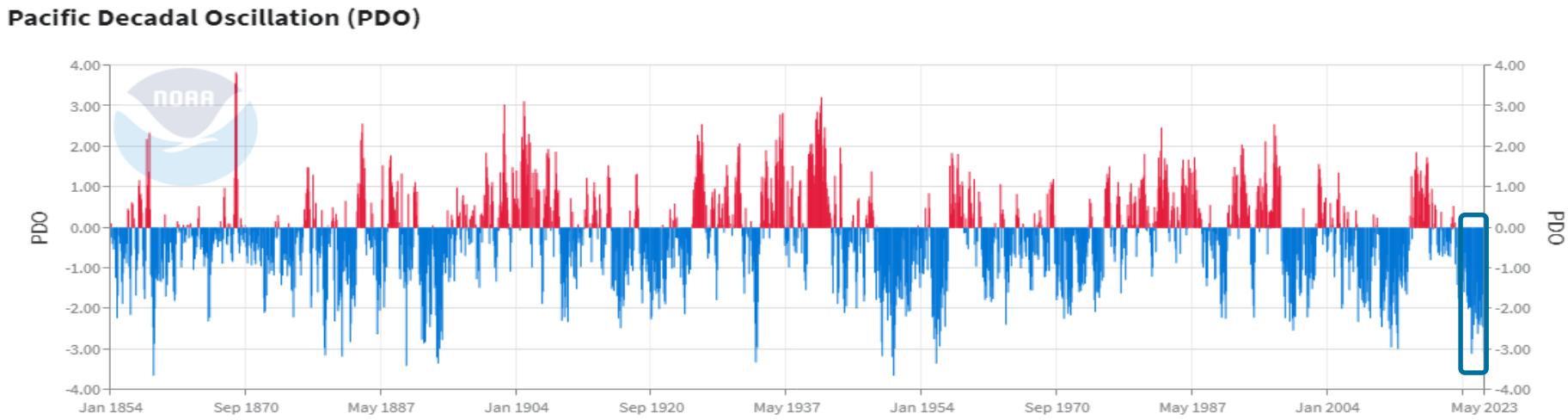
*Above right: Oceanic Niño Index. Values below -0.5 (light blue) indicate a 3-month La Niña episode. ENSO-neutral is likely to reach El Niño by July.







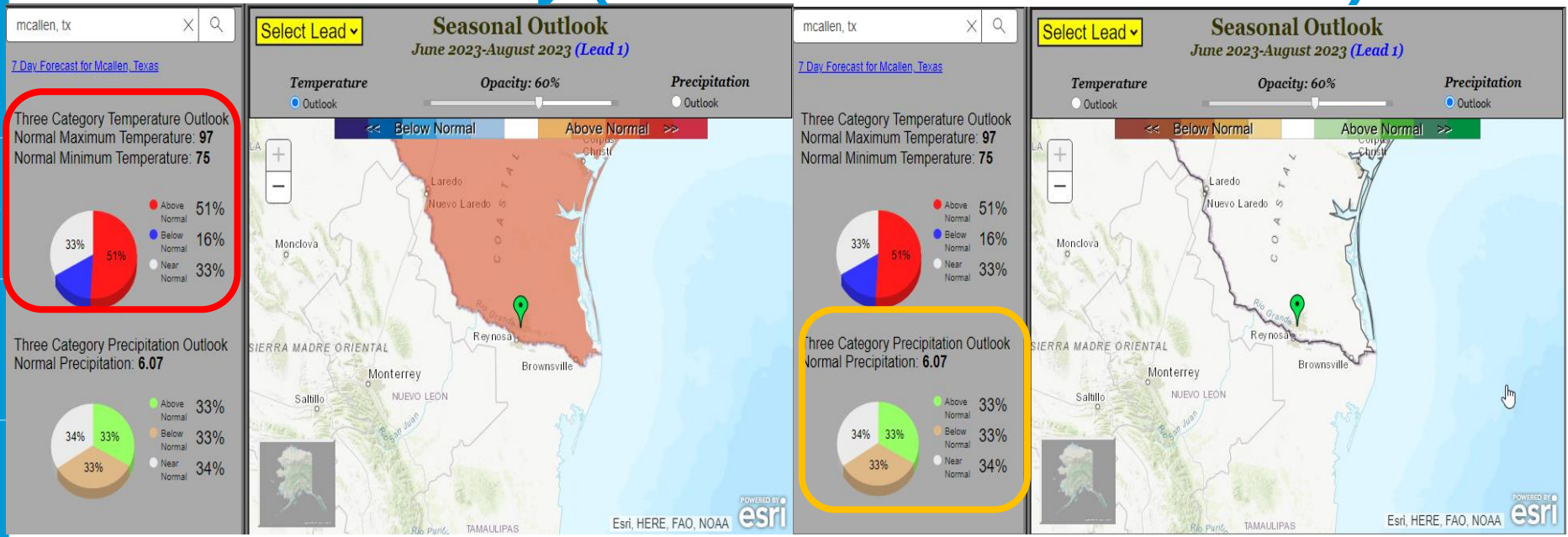
The “Why” of the Forecast: Pacific Decadal Oscillation (PDO) remains in Sharp Negative Phase



Source: https://www.ncei.noaa.gov/pub/data/cmb/ersst/v5/index/ersst.v5.pdo.dat

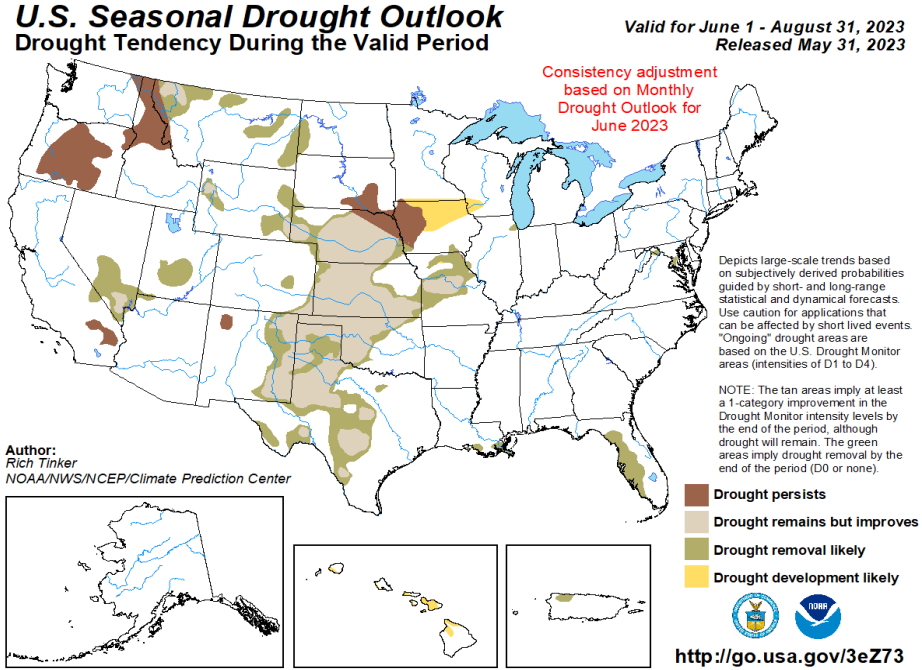
- The 2021-2023 prolonged and strong negative PDO remains similar to that of late 2010 through 2011. Combined with the persistent La Niña – also very similar to that from late 2010-2011 (though 2011 was a bit stronger), **confidence remains high on a hot summer** overall.
- The PDO when combined with neutral ENSO increases confidence on a **hot/very hot and dry** second half of the period (**mid June through mid August**)

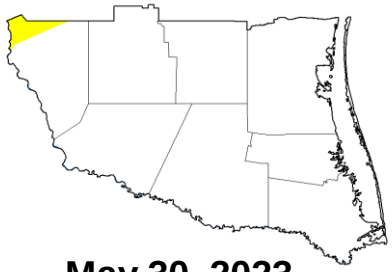
The Summer 2023 Outlook:
Rio Grande Valley (McAllen as Anchor Point)



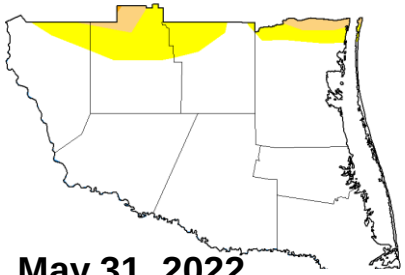
- Temperature: A **51 percent chance of above average**. **A 16 percent chance for below** average: RGV averages: Afternoon – Upper 90s to lower 100s. Wake-up: 77 to 80
- Precipitation: Equal Chances of Above, Below, or Average. RGV averages: 6 to 7.5 inches.

The Summer 2023“Droughtlook”





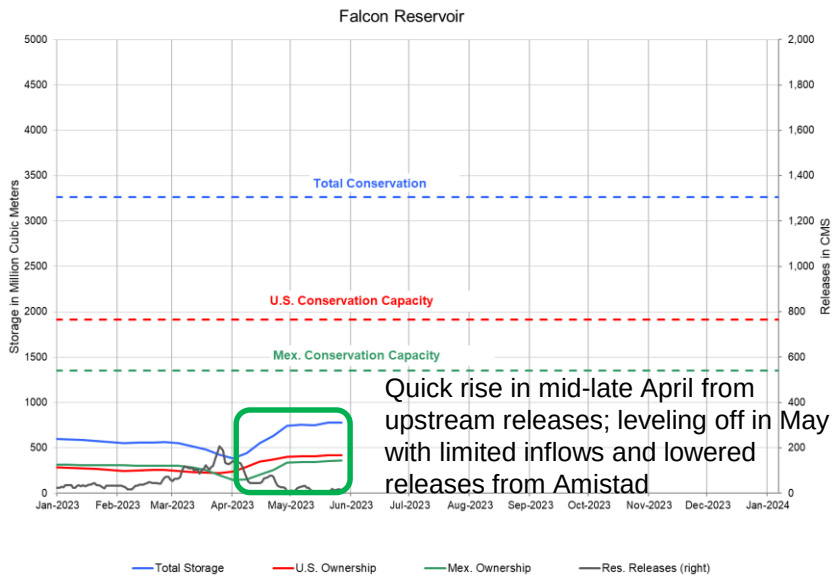
May 30, 2023

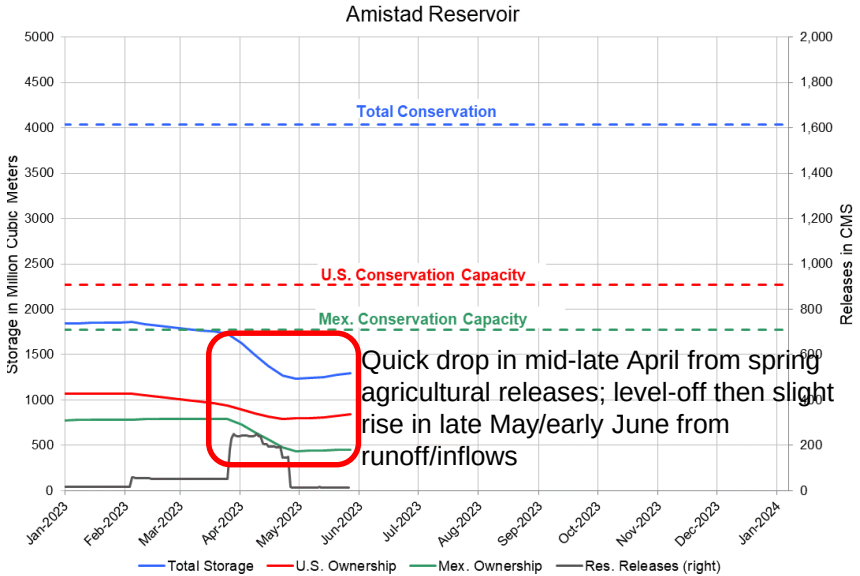


May 31, 2022

- **Dryness was removed** for all but a sliver of northwest Zapata County, as prolific rainfall continues through May. The land turned green and grass and brush thickened up. May rainfall was generally 150 to 300% of average across most areas, with close to average values across northern Jim Hogg, Brooks, and Kenedy.
- **HOWEVER, a hot/dry late June and especially July into mid August** would allow moderate to potentially severe drought to make a comeback, despite the outlook being “drought free” on the map above.

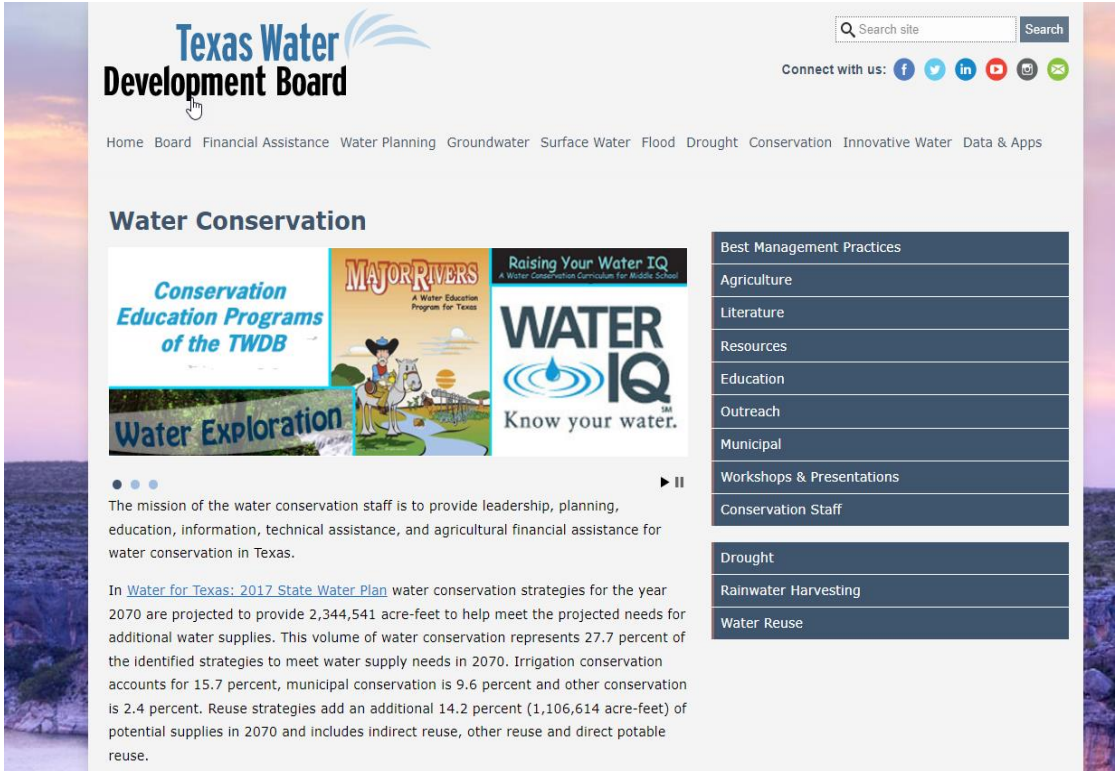
Falcon and Amistad Leveled Off at Slightly Higher Levels; Primed for Steady Drops through mid August 2023





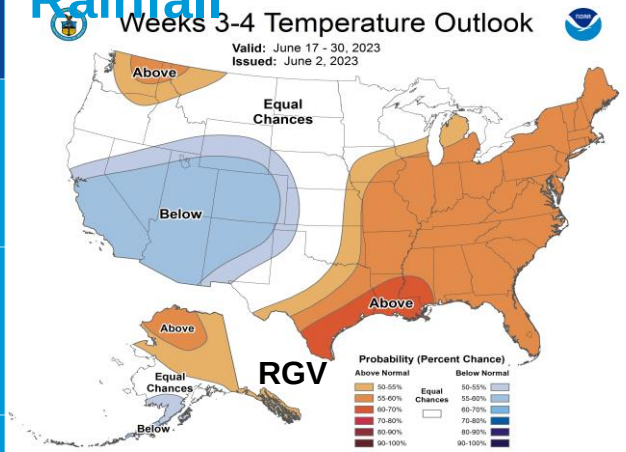
- Falcon rose marginally from 23 to 24 percent during May and early June. Still, **low/very low** compared with long-term record, and drops expected through mid August.
- Amistad rose marginally from just above 30 percent to **33.5** percent total capacity on June 6th, still **very low**. Steady drops are expected through at least mid August.

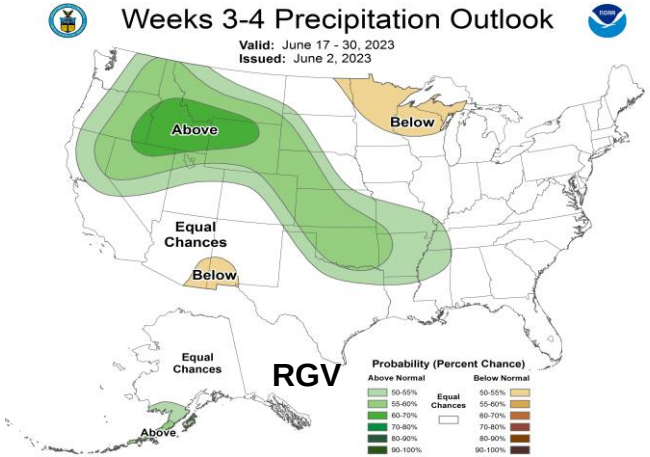
Water Conservation is (still) Key!

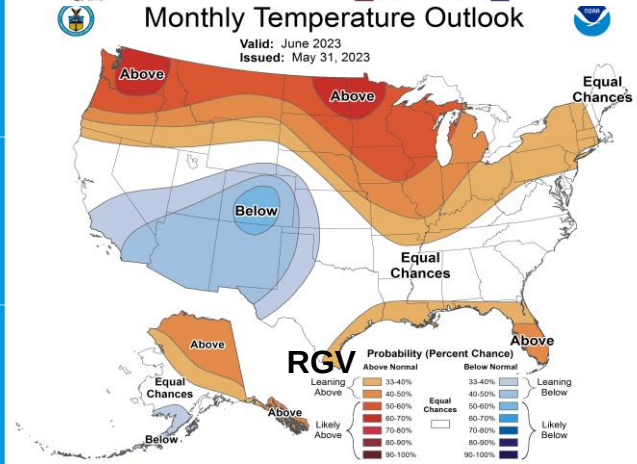


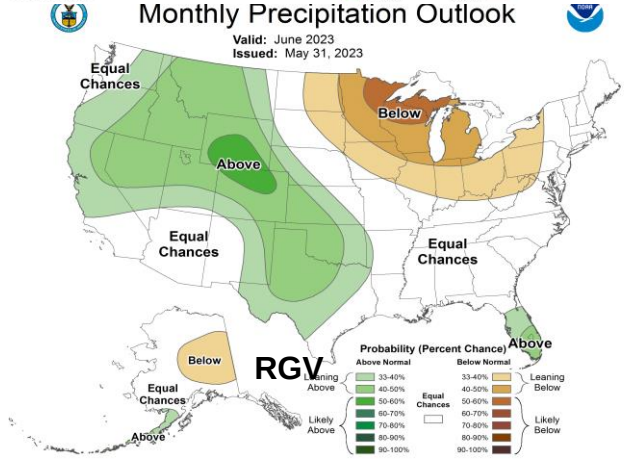
- With "Stage 2" Restrictions possible later this summer, water conservation is critical.
- Learn more at the Texas Water Development Board's Conservation Page

June 2023: Confidence High on Heat; Medium on Rainfall



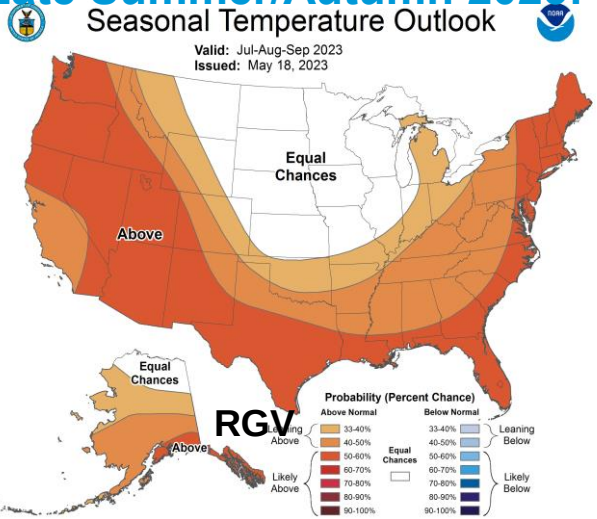


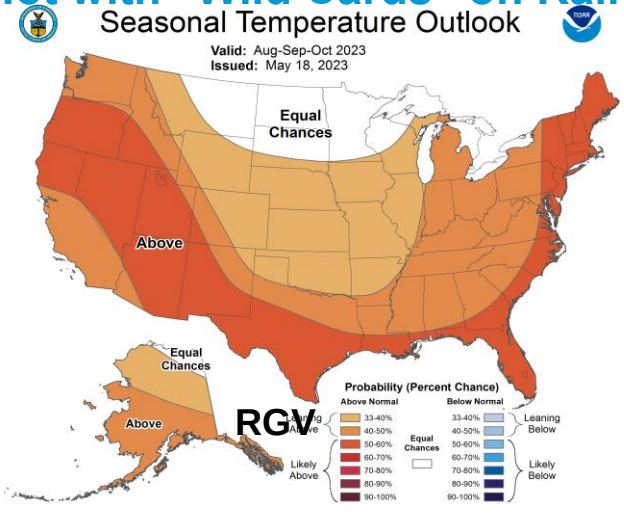


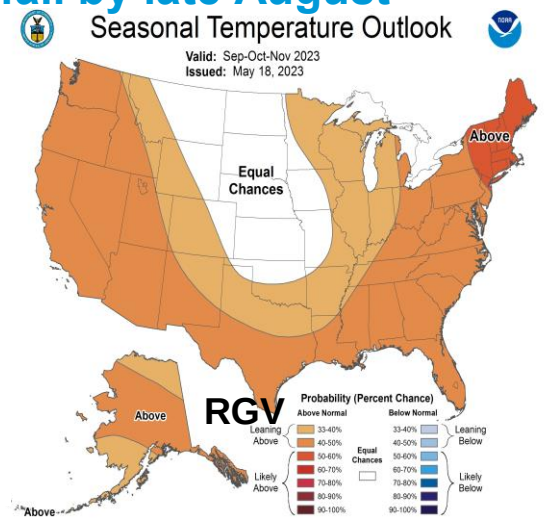


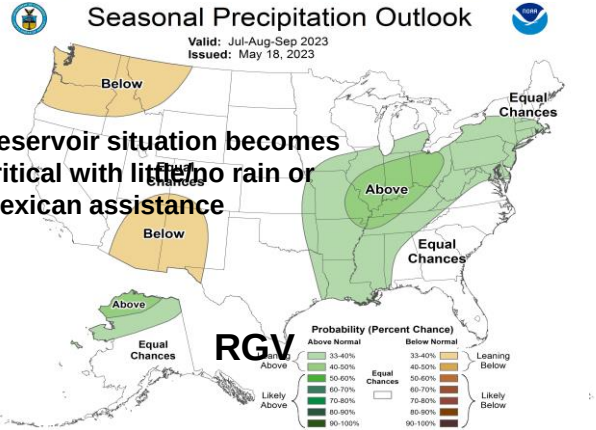
- **Bottom Line: Hot/Very Hot weather is expected**. The return of the "La Canícula" ridge will bring temperatures above average for the middle two weeks of June (97 to 102 afternoon; 77-82 morning)
- Confidence in a hot and dry June is increasing as the onset of "La Canícula" ridging (heat dome) has begun. The active jet stream that produced frequent thunderstorms and cooling events has retreated.
- The potential for a tropical wave or cyclone in the western Gulf cannot be ruled out for the last week of June, despite the onset of hot and rain-free weather preceding it.

Late Summer/Autumn 2023: Hot with "Wild Cards" on Rainfall by late August

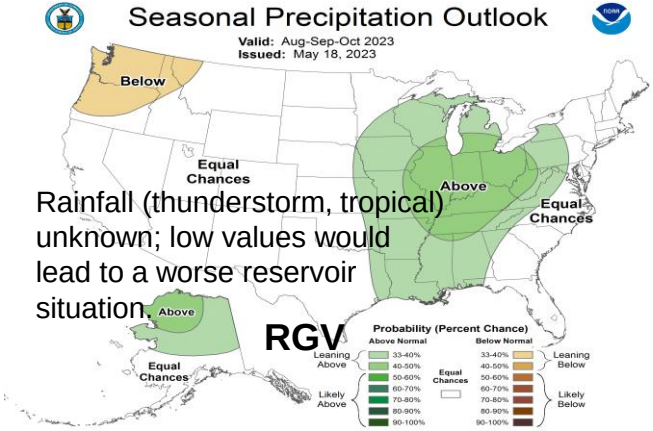




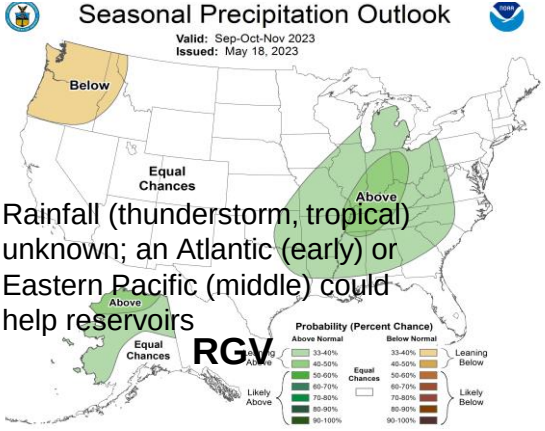




Reservoir situation becomes critical with little/no rain or Mexican assistance



Rainfall (thunderstorm, tropical) unknown; low values would lead to a worse reservoir situation.



Rainfall (thunderstorm, tropical) unknown; an Atlantic (early) or Eastern Pacific (middle) could help reservoirs

Bottom Lines

- "La Canícula" returns in mid June, and could become a persistent feature through mid August, with **excessive heat a likelihood at times**. **Heat safety is critical** for local residents and persons who need shelter from the heat.
- Water storage levels at **Amistad and Falcon** leveled off following brief rises in April and May. The combination of heat/high evaporation rates with little to no inflows from Mexican reservoirs serving the Lower Rio Grande watershed, **combined share of water in Amistad and Falcon may still reach Stage 2 triggers in July or August.** Water **conservation, smart irrigation , and rainwater harvesting** are important actions to consider even before local water supplies are impacted.
- Regrowth of grasses and brush through early June, will initially keep wildfire spread potential down. A dry and very hot late June/July could **rapidly dry out these fuels and promote some wildfire spread** on breezy to windy and dry days **from July into August**.
- **Drought and dryness** should remain in check through June, but a hotter and rain-free mid June through mid August could return locally moderate to potentially severe drought by late summer.
- The **Gulf of Mexico/western Caribbean tropics are a "wild card" in late June and again in August**. Despite the hot/very hot and dry-leaning forecast, #ItOnlyTakesOne tropical event to change everything. Understand and prepare with our **2023 Hurricane Guide**.