

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

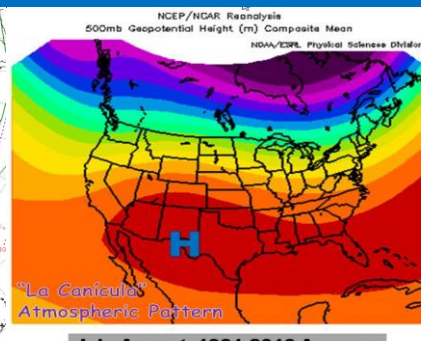
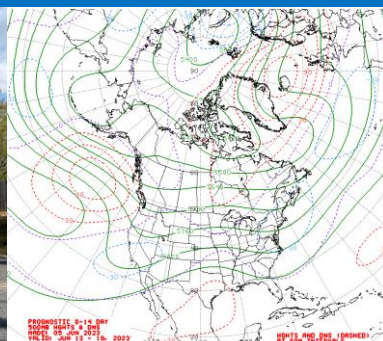


**NATIONAL
WEATHER
SERVICE**

June 6, 2023

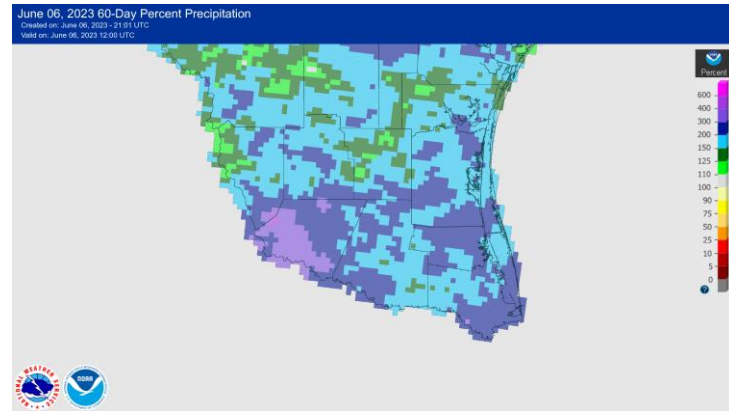
Barry Goldsmith, NWS Brownsville/Rio Grande Valley, Texas

Hot Pattern Returns; Will Drought Follow?

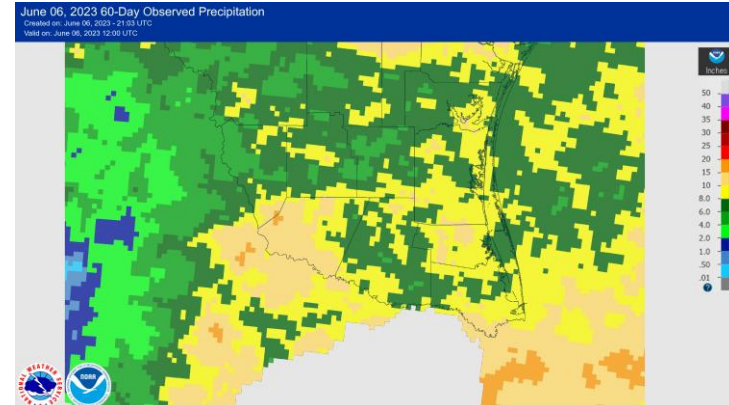


Since late April...

- 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

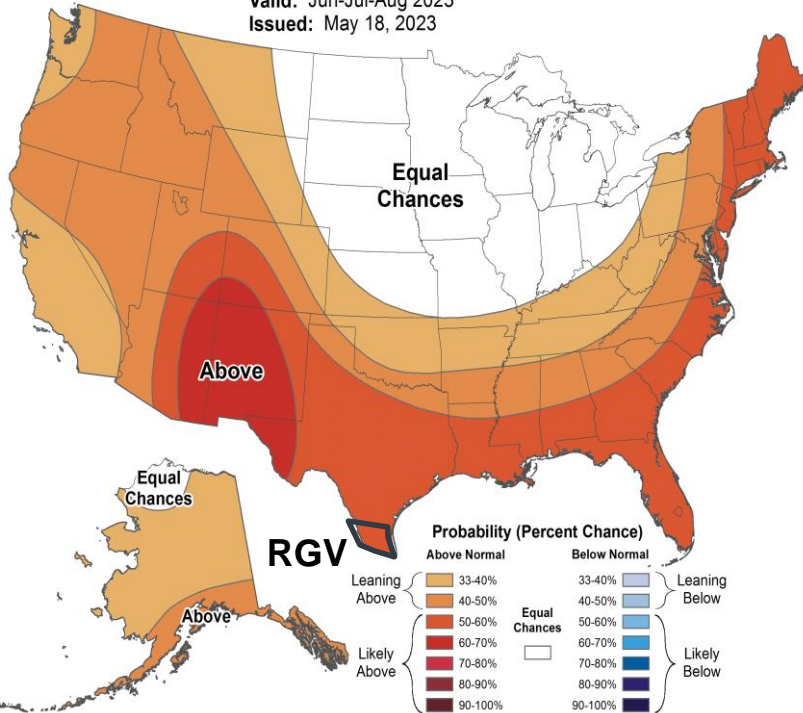
Seasonal Forecast Summer 2023 - USA



Seasonal Temperature Outlook



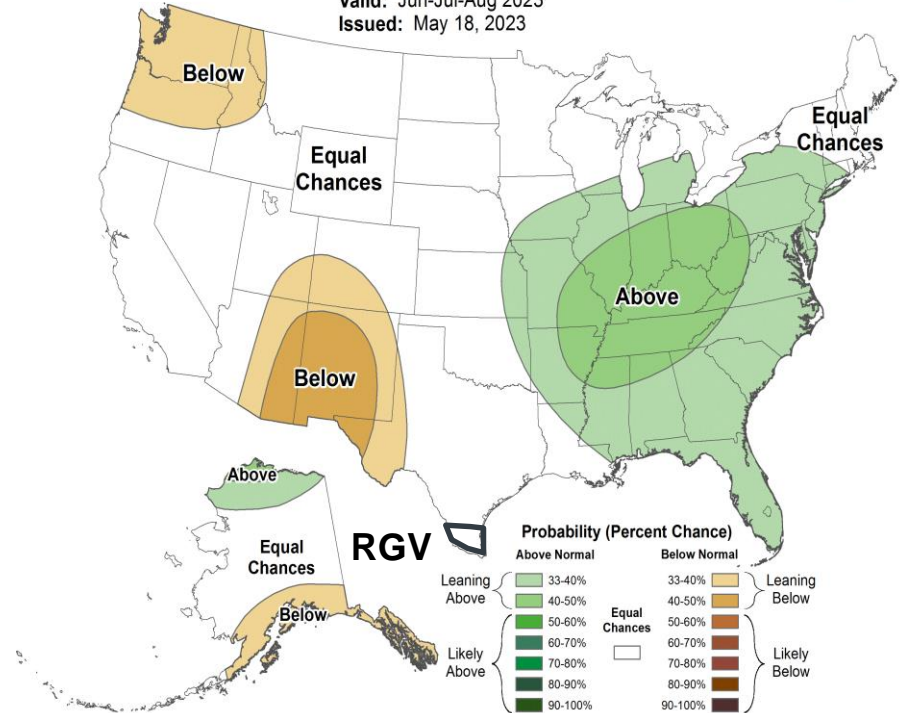
Valid: Jun-Jul-Aug 2023
Issued: May 18, 2023



Seasonal Precipitation Outlook



Valid: Jun-Jul-Aug 2023
Issued: May 18, 2023



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									

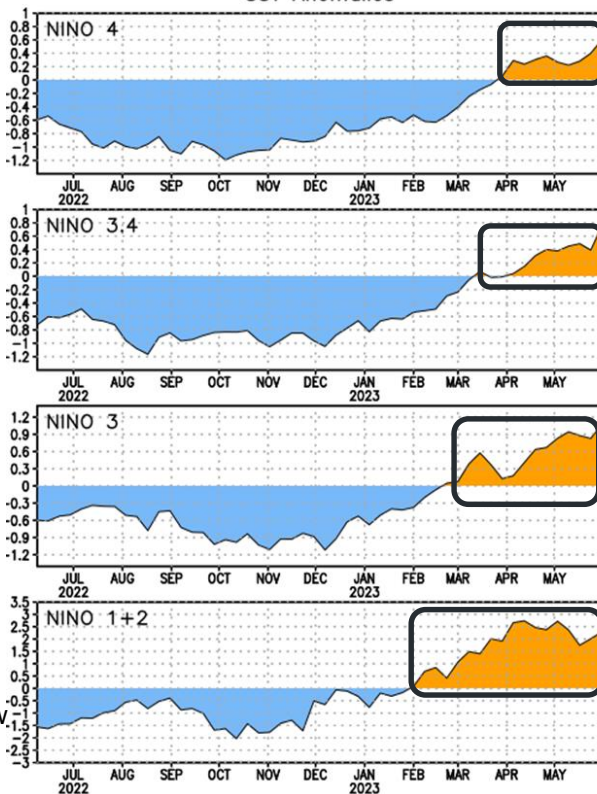
El Niño conditions through early June may be having influence on background atmospheric patterns.

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

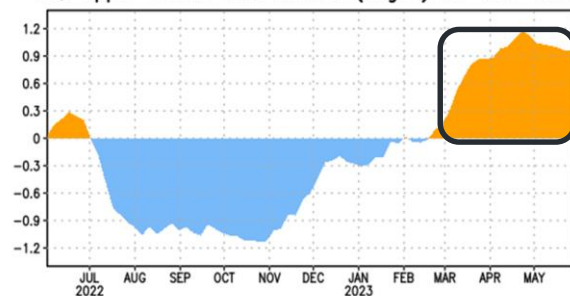
El Niño is likely by mid summer and through the peak of the Hurricane season. Summer El Niños can enhance heat/drought here, as was the case in 2009.

*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.

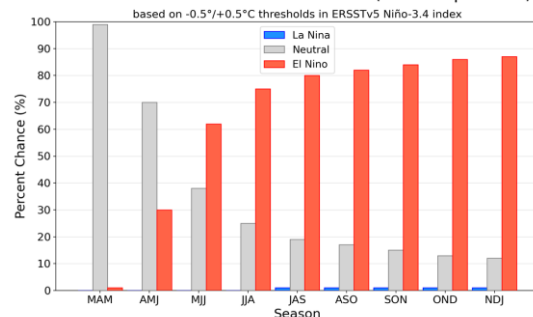
SST Anomalies



EQ. Upper-Ocean Heat Anoms. (deg C) for 180–100W

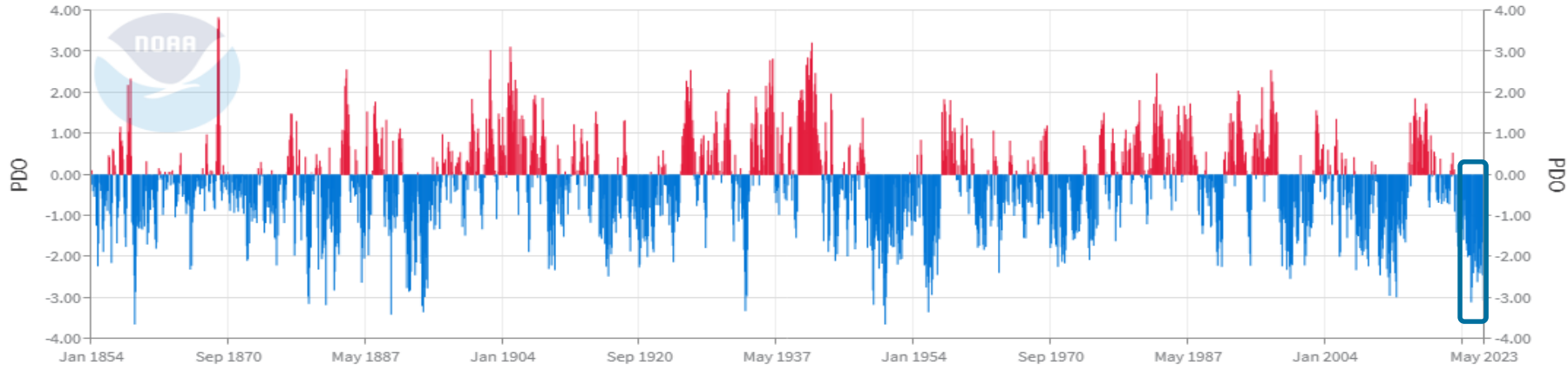


Official NOAA CPC ENSO Probabilities (issued Apr. 2023)



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

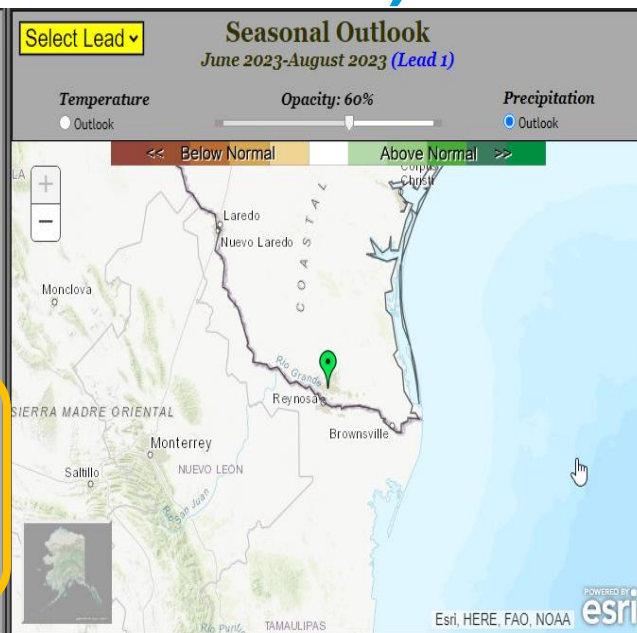
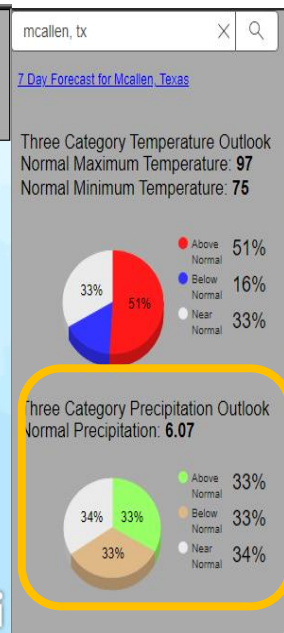
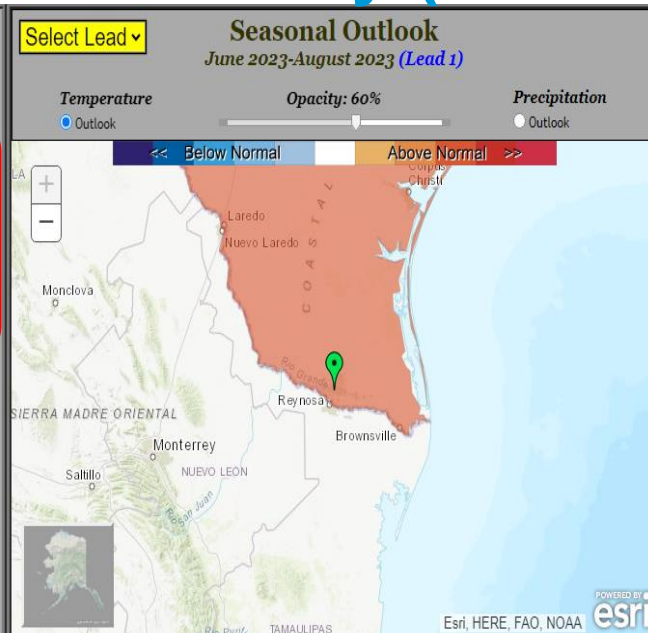
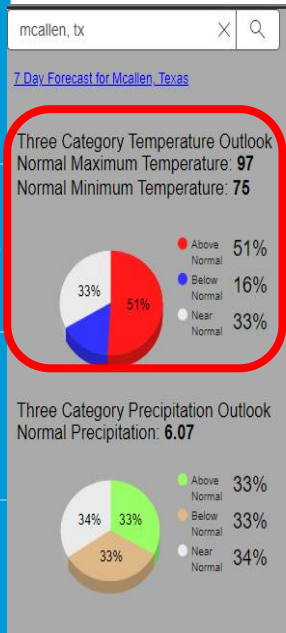
Pacific Decadal Oscillation (PDO)



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)



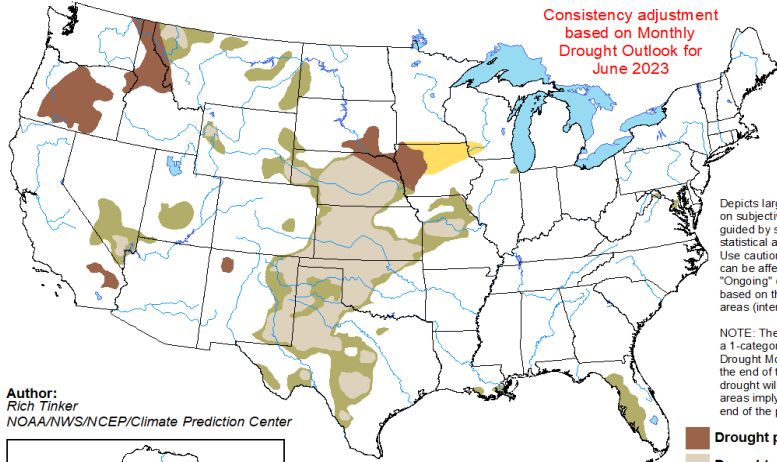
- Temperature: A **51 percent chance of above average**. A **16 percent chance for below** average: RGV averages: Afternoon – Upper 90s to lower 100s. Wake-up: 77 to 80
- Precipitation: Equal Chances of Above, Below, or Average. RGV averages: 6 to 7.5 inches.



The Summer 2023 “Droughtlook”

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for June 1 - August 31, 2023
Released May 31, 2023



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).

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

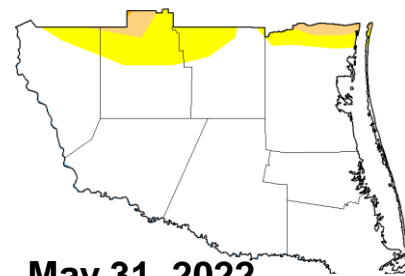


<http://go.usa.gov/3eZ73>

Author:
Rich Tinker
NOAA/NWS/NCEP/Climate Prediction Center



May 30, 2023



May 31, 2022

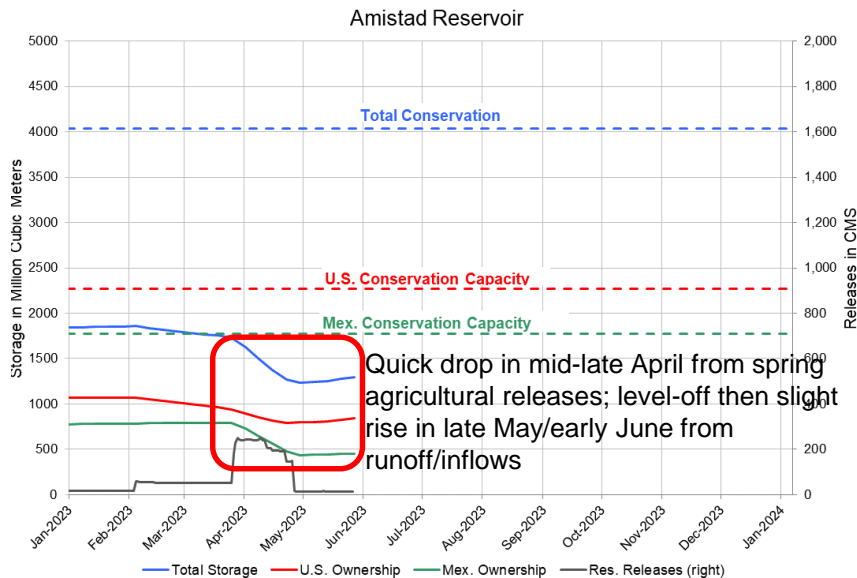
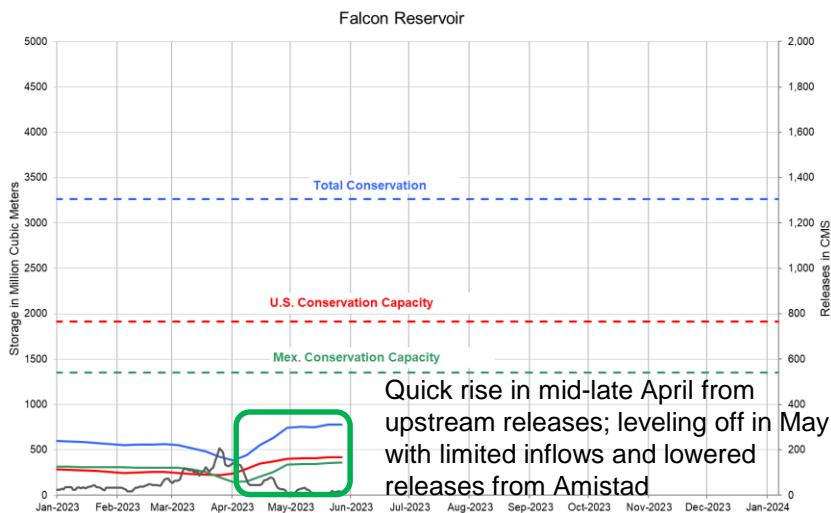
Drought Classification

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

- **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!

The screenshot shows the Texas Water Development Board website. At the top left is the logo with the text "Texas Water Development Board". To the right is a search bar and social media icons for Facebook, Twitter, LinkedIn, YouTube, Instagram, and RSS. Below the logo is a navigation menu with links: Home, Board, Financial Assistance, Water Planning, Groundwater, Surface Water, Flood, Drought, Conservation, Innovative Water, and Data & Apps. The main content area is titled "Water Conservation" and features a carousel of three educational materials: "Conservation Education Programs of the TWDB", "MAJOR RIVERS A Water Education Program for Texas", and "Raising Your Water IQ A Water Conservation Curriculum for Middle School". Below the carousel is a paragraph stating the mission of the water conservation staff. To the right of the main content is a vertical menu with categories: Best Management Practices, Agriculture, Literature, Resources, Education, Outreach, Municipal, Workshops & Presentations, and Conservation Staff. Below this menu is another section titled "Drought" with sub-items: Rainwater Harvesting and Water Reuse.

Texas Water Development Board

Home Board Financial Assistance Water Planning Groundwater Surface Water Flood Drought Conservation Innovative Water Data & Apps

Water Conservation

Conservation Education Programs of the TWDB

MAJOR RIVERS
A Water Education Program for Texas

Raising Your Water IQ
A Water Conservation Curriculum for Middle School

WATER IQ
Know your water.

Water Exploration

The mission of the water conservation staff is to provide leadership, planning, education, information, technical assistance, and agricultural financial assistance for water conservation in Texas.

In [Water for Texas: 2017 State Water Plan](#) water conservation strategies for the year 2070 are projected to provide 2,344,541 acre-feet to help meet the projected needs for additional water supplies. This volume of water conservation represents 27.7 percent of the identified strategies to meet water supply needs in 2070. Irrigation conservation accounts for 15.7 percent, municipal conservation is 9.6 percent and other conservation is 2.4 percent. Reuse strategies add an additional 14.2 percent (1,106,614 acre-feet) of potential supplies in 2070 and includes indirect reuse, other reuse and direct potable reuse.

Best Management Practices

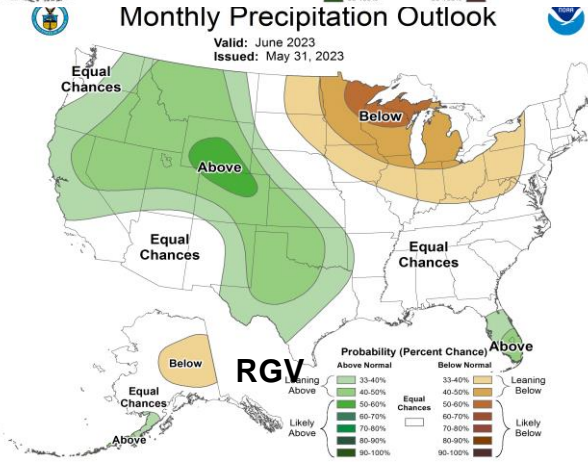
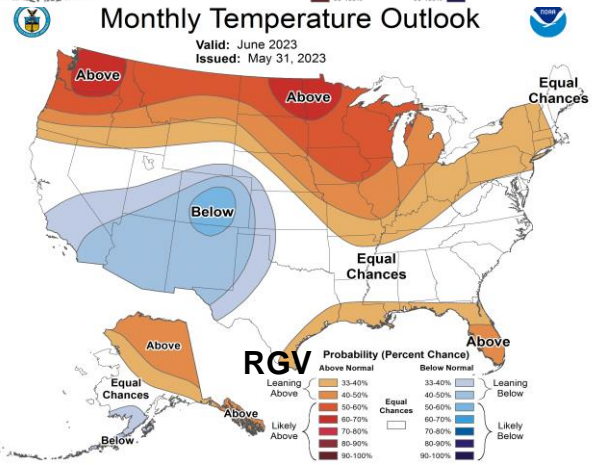
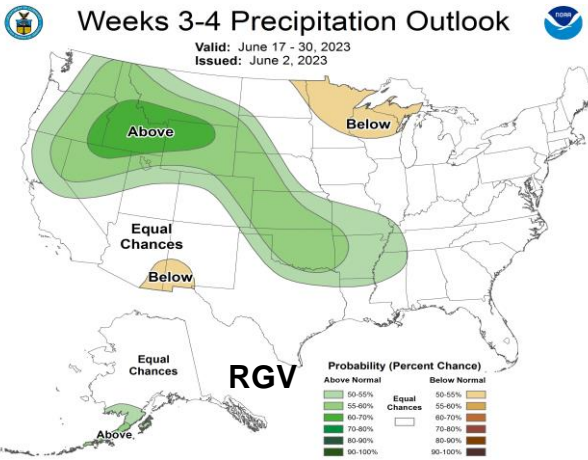
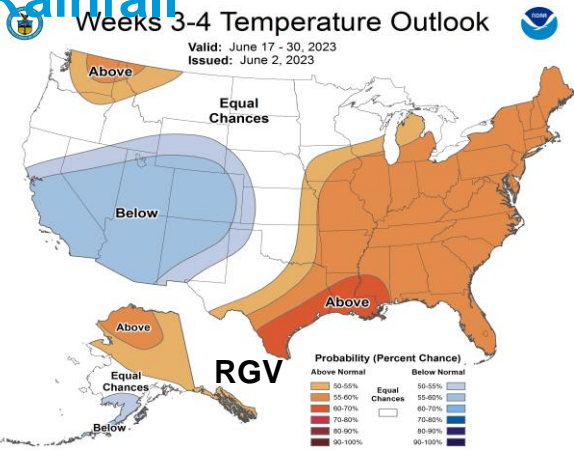
- Agriculture
- Literature
- Resources
- Education
- Outreach
- Municipal
- Workshops & Presentations
- Conservation Staff

Drought

- Rainwater Harvesting
- Water Reuse

- 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 Canicula” 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 Canicula” 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



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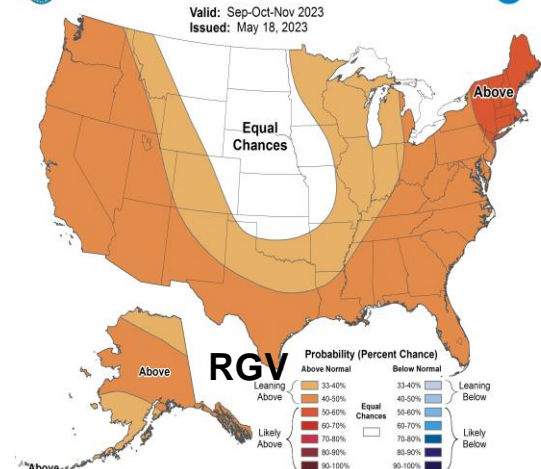
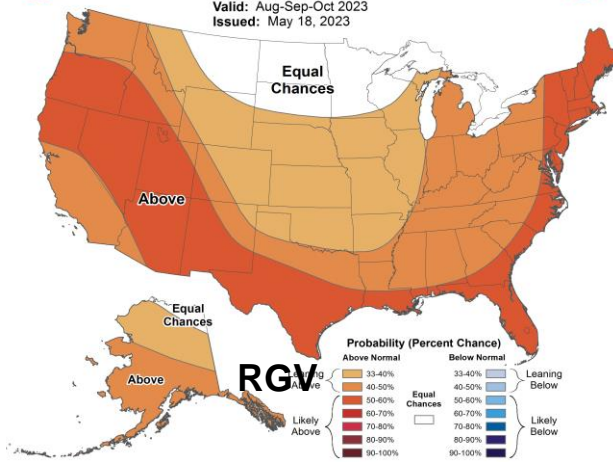
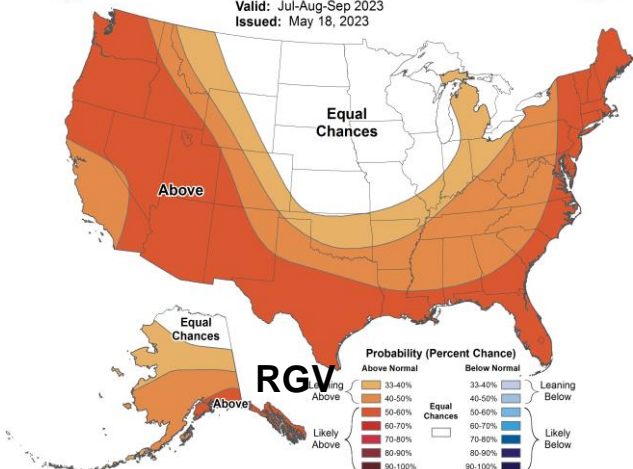
Seasonal Temperature Outlook

Valid: Aug-Sep-Oct 2023
Issued: May 18, 2023



Seasonal Temperature Outlook

Valid: Sep-Oct-Nov 2023
Issued: May 18, 2023



Seasonal Precipitation Outlook

Valid: Jul-Aug-Sep 2023
Issued: May 18, 2023



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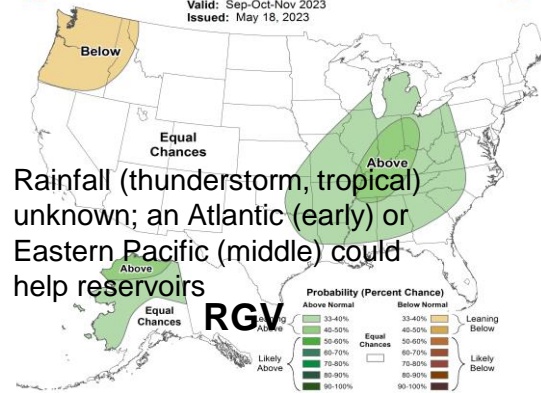
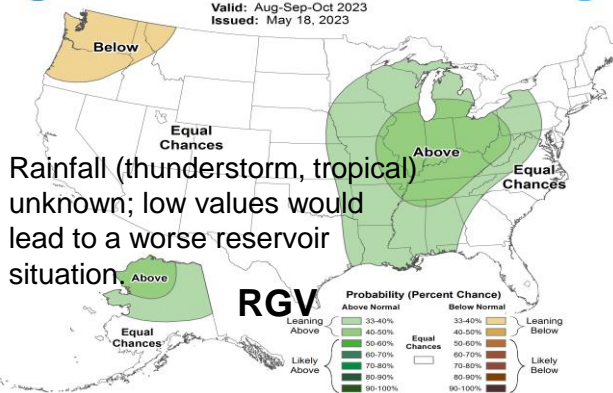
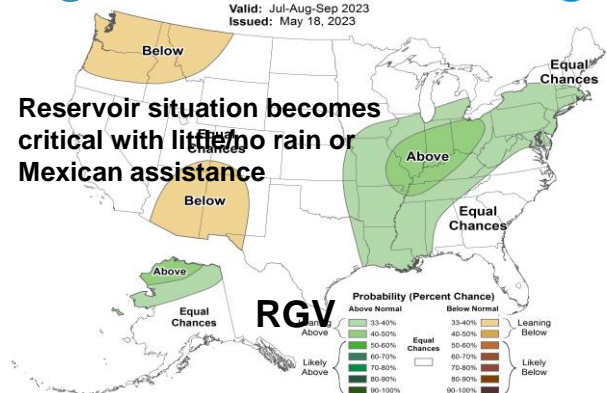


Seasonal Precipitation Outlook

Valid: Sep-Oct-Nov 2023
Issued: May 18, 2023



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](#).

