June to August (Summer) 2024 Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region (includes a brief Hurricane Season Outlook)

NATIONAL WEATHER SERVICE

May 27, 2024

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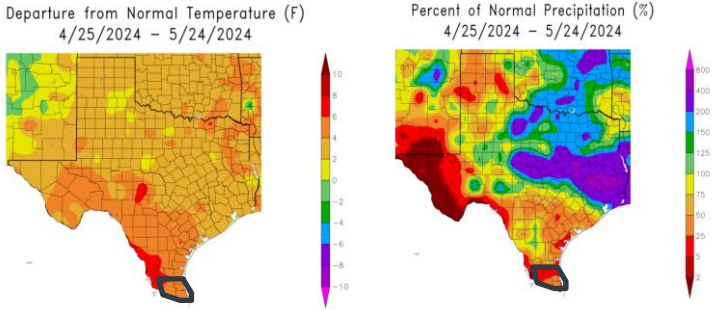
NWS Brownsville/Rio Grande Valley, Texas

Hot and Dry Theme continues as we transition to a La Nina this summer; tropical moisture Critical in what's expected to be a very active Atlantic Hurricane Season



Tropical season rainfall is critical to relieve a developing Valley water crisis.

May 2024: “Hotter than July” as heat and humidity intensified!

- **Storm track** continued to **favor northern, central, and southeast Texas with copious amounts of rainfall** in May while the **RGV remained dry**.
- **Anomalously strong late May heatwave yielded excessive, dangerous, record-breaking temperatures** across the Rio Grande Valley as the number of 100F degree days stacked up. Year-to-date temperatures approached warmest all time.
- Rio Grande reservoirs that serve border communities in south/southwestTexas were **at record calendar-day lows at the end of May** (lower right), and **near all-time record lows** for any time.

Maximum 147-Day Mean Avg Temperature for Brownsville Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	74.2	2020-05-26	0
2	73.5	2024-05-26	1
3	73.4	2000-05-26	0
4	73.0	2012-05-26	0
5	71.5	1972-05-26	0
6	70.9	2008-05-26	0
7	70.9	1916-05-26	1
8	70.9	1908-05-26	1
9	70.5	1952-05-26	0
10	70.1	1880-05-26	0

Period of record: 1878-01-01 to 2024-05-26

Maximum 147-Day Mean Avg Temperature for McAllen Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	74.9	2020-05-26	0
2	74.5	2000-05-26	0
3	73.6	2024-05-26	0
4	73.5	2016-05-26	0
5	73.3	2012-05-26	0
6	72.8	2008-05-26	0
7	71.8	1972-05-26	0
8	70.8	1952-05-26	0
9	70.4	1980-05-26	0
10	70.2	1996-05-26	2

Period of record: 1941-06-01 to 2024-05-26

Maximum 147-Day Mean Avg Temperature for McAllen Area, TX (ThreadEx)

Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	74.9	2020-05-26	0
2	74.5	2000-05-26	0
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10	70.2	1996-05-26	2

Period of record: 1941-06-01 to 2024-05-26

Maximum 147-Day Mean Avg Temperature for RAYMONDVILLE, TX

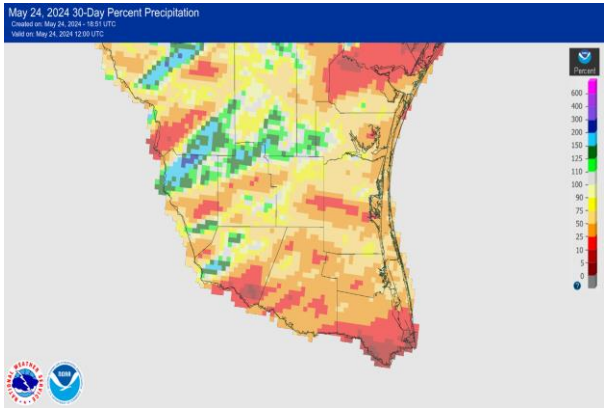
Click column heading to sort ascending, click again to sort descending

Rank	Value	Ending Date	Missing Days
1	72.8	2020-05-27	17
2	72.2	1916-05-27	10
3	72.2	2000-05-27	1
4	71.7	1952-05-27	0
5	71.3	2024-05-27	27
6	71.0	2012-05-27	5
7	70.7	1944-05-27	11
8	70.2	1932-05-27	14
9	70.2	1972-05-27	1
10	69.9	2008-05-27	6

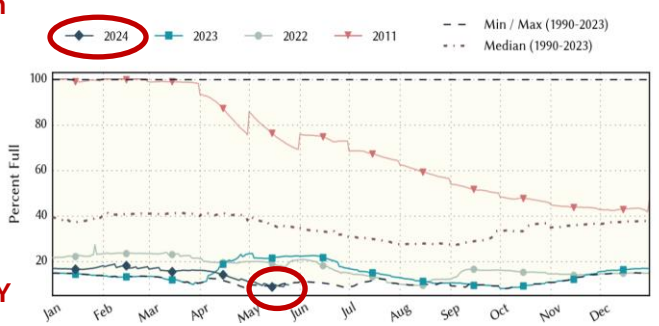
Period of record: 1913-01-01 to 2024-05-24

Note: May (through the 26th), all locations ranked **hottest all time, by as much as 3.5 degrees above the prior record** (Brownsville).

Brownsville and McAllen ranked **among the ten hottest – IN JULY – for the May values**!

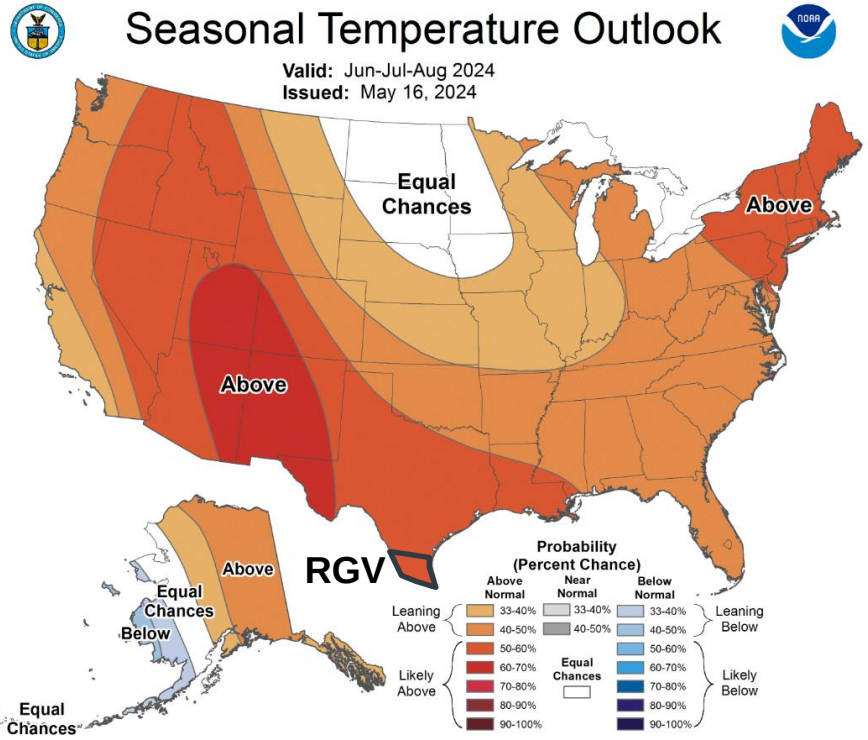


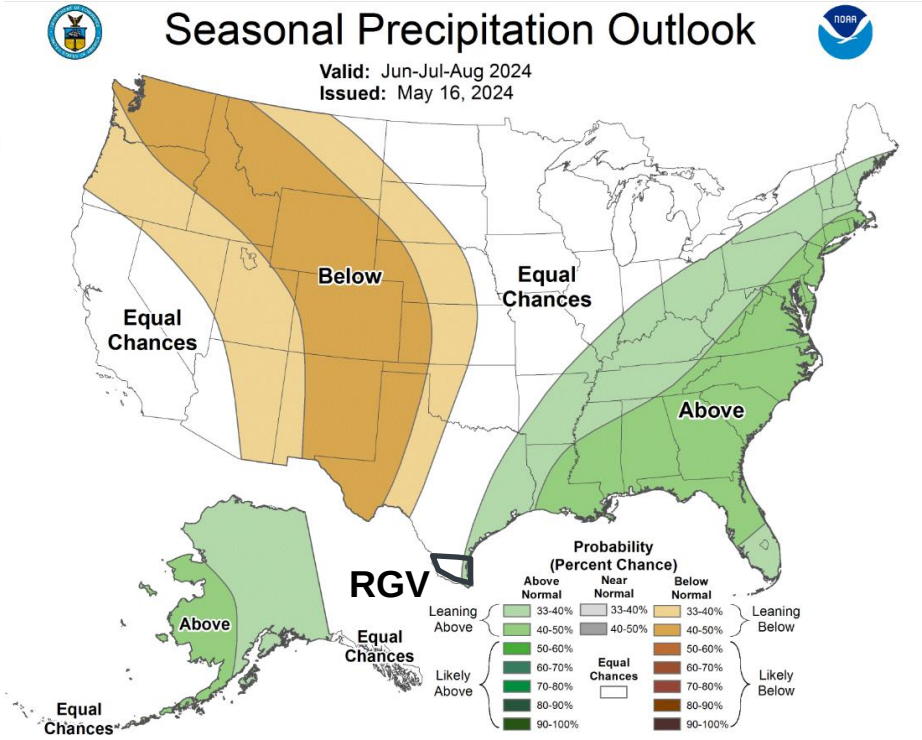
May 1-24, 2024 percentage of average rainfall. All but a small area of Zapata County was 5 to 50% of average rainfall (average April rainfall is 1 to 1.5 inches).



Texas share of Amistad, Falcon, Red Bluff Reservoirs. Credit: Texas Water Development Board

Seasonal Forecast, June – August 2024 USA





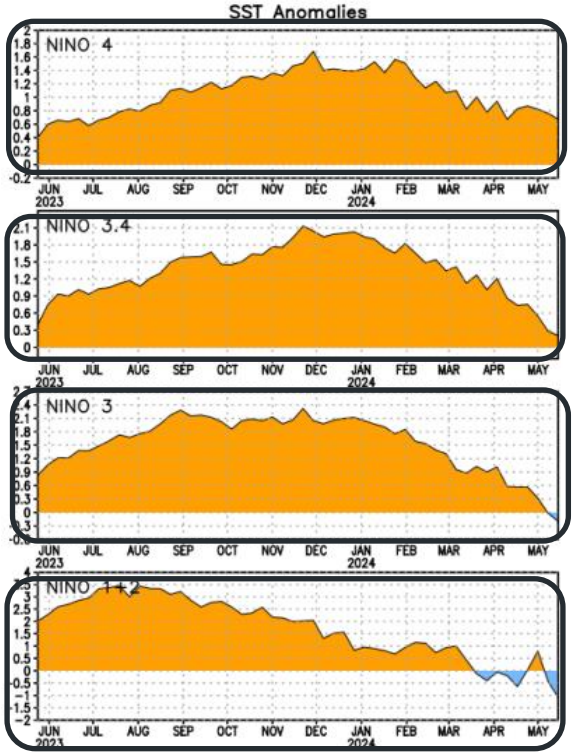
Key Takeaways: June-August 2024 Outlook

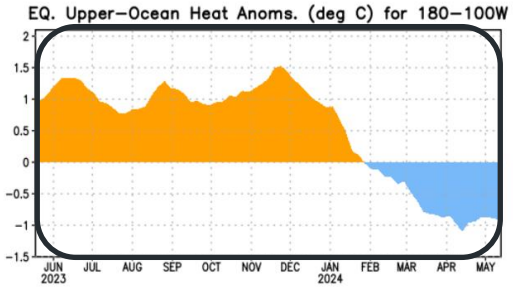
- Confidence is **high** on temperature and **medium-high** on non-tropical rainfall outcomes. Non-tropical rainfall trends look to remain the same, that is far and few in between for the RGV/Deep S. Texas ranches for June into at least mid-July and possibly through That said, confidence remains **medium-high** on **moderate to severe drought** development/expansion. Confidence is **high** on hotter than normal temperatures as the continued dryness and drought expansion is creating a positive feedback loop for enhancing temperatures.
  - While confidence remains **high** that **temperatures will run hotter than normal** this summer, it remains uncertain where the most intense heat will reside as the heat dome looks to swing like a pendulum from the western U.S. to the central/southern U.S. June-July before finally locking in on one of these regions by August.
  - Reservoir levels at Falcon fell to **overall record/near record lows** by the end of May. Amistad total water levels at the end of May remained **at/near all-time record lows**. Confidence is increasing on warm and dry conditions across the reservoir inflow regions through the summer, with accelerating evaporation rates in June and July. **Confidence is near-certain on total storage remaining at or near record lows through early to mid summer** based on the temperature/rain forecast.
  - **Stage 2 and 3 water conservation continued in several RGV municipalities in May, and Cameron, Hidalgo, and Willacy Counties issued water-shortage disaster declarations. Worsening conditions are likely through early to mid summer** if storms continue to be infrequent.
  - **100° days are likely to increase in June**. Additionally, **dangerous "feels like" temperatures – 111° or higher** – are likely, on many occasions, in June and July, **for a third year in a row**.
  - That said, **dependency on tropical systems** in what's expected to be an active season continues to **increase** and **could be the saving grace that helps put a dent on dryness expansion**.

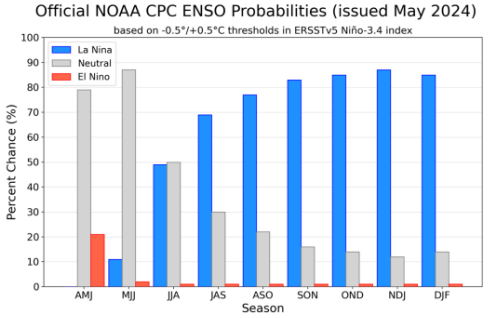
The "Why" of the Forecast: La Nina remains on track to develop this Summer

- Anthropogenic and non-anthropogenic climate forcings such as a **positive feedback loop** of hot and dry weather regime attracting additional hot and dry weather, coupled with other teleconnections (i.e. Arctic Oscillation (AO), North American Oscillation (NAO), etc) steering the main storm track further to the north, will continue to **limit** rainfall production through early summer.
- The continued rapid **transition towards a La Nina** also favors hotter and drier conditions through early summer.
- **Bottom Line:** Tropical moisture help whether from a tropical cyclone or a series of tropical waves will be critical beyond mid-July

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	0.2	0.5	0.8	1.1	1.3	1.6	1.8	1.9	2.0
2024	1.8	1.5	1.1									

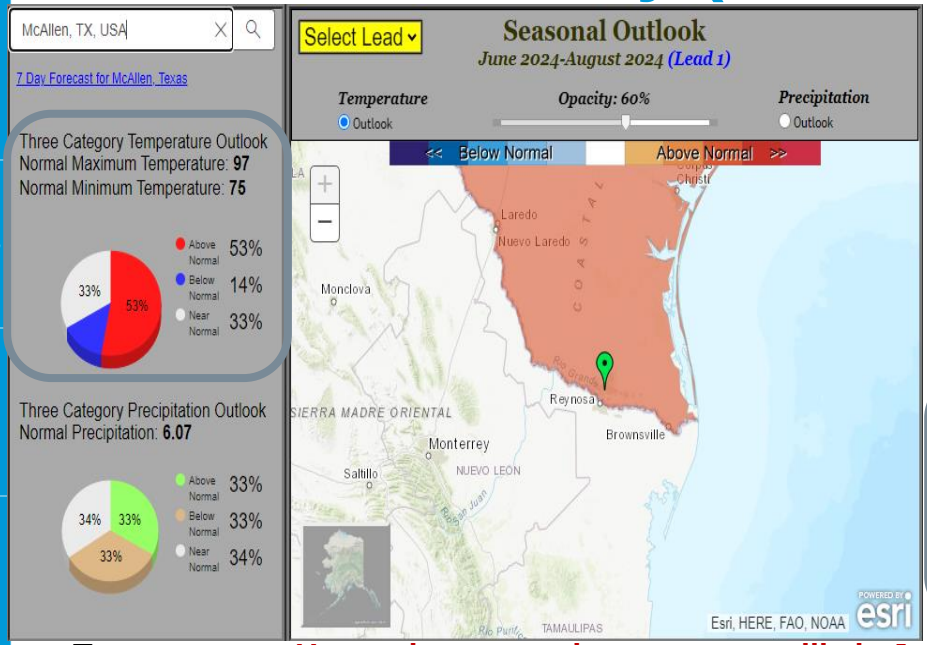


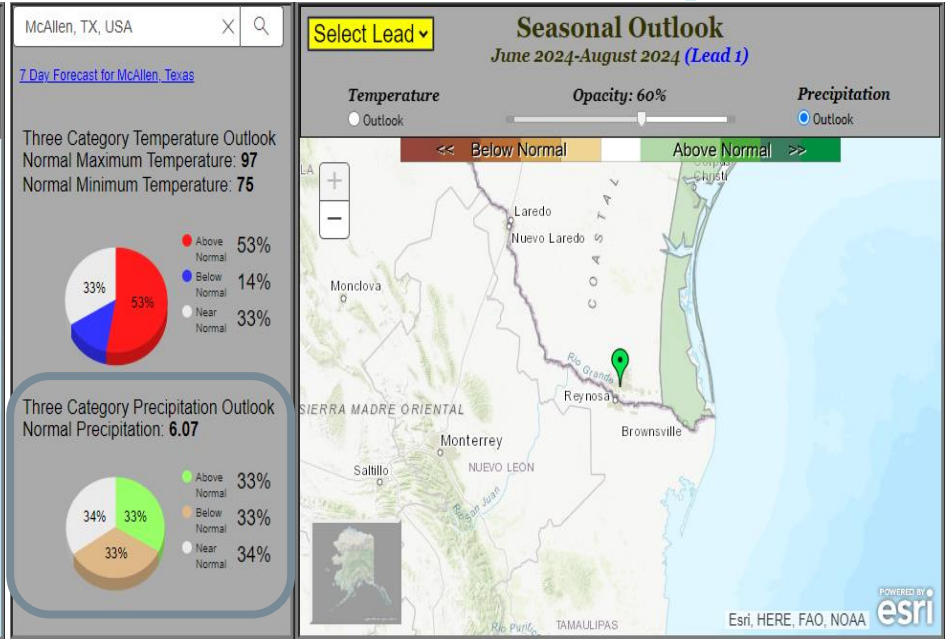




*Above right: Oceanic Niño Index. Values below -0.5 (**light blue**) for five consecutive 3-month periods indicated La Niña. El Niño (**red,** +0.5) officially began in April-June 2023, reached strong levels (**+1.5**) by August-October 2023, strengthened further through November-January weakened slightly December-February.

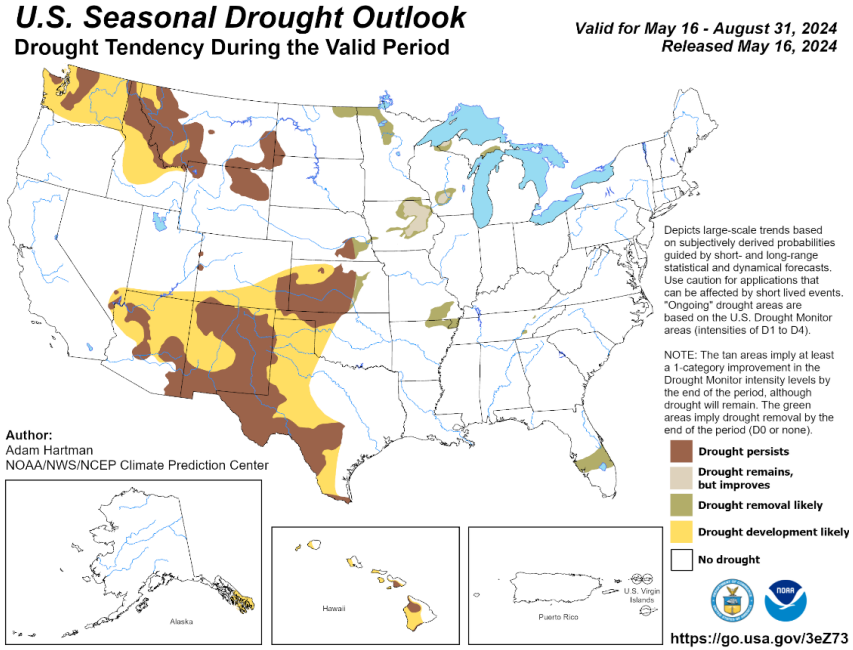
The June-August 2024 Outlook: Rio Grande Valley (McAllen as Anchor Point)

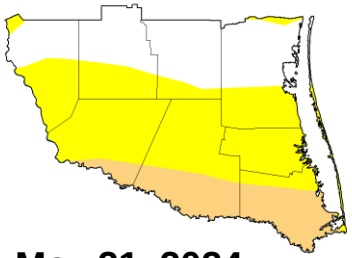




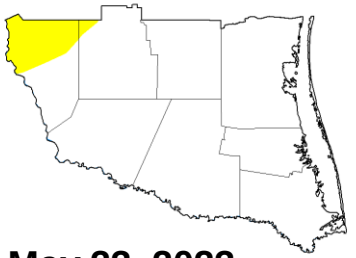
- **Temperature:** **Hotter than normal temperatures likely June-August (Confidence: High).** RGV averages: Afternoon – Around 95 at the start of June, rising to 98 to 102 in July and August. Wake-up: Mid 70s in early June, rising to 77 to 80 from late June through August.
- **Precipitation:** **Equal chances for above, below, and average**. **Slight lean for above average precipitation near/along the coast, mid July through August.** RGV averages: 6 inches upper RGV/Rio Grande Plains, 7-8 inches lower/mid RGV

The May-July 2024 “Droughtlook”

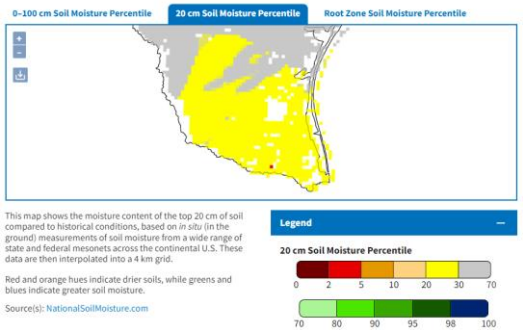




May 21, 2024



May 23, 2023



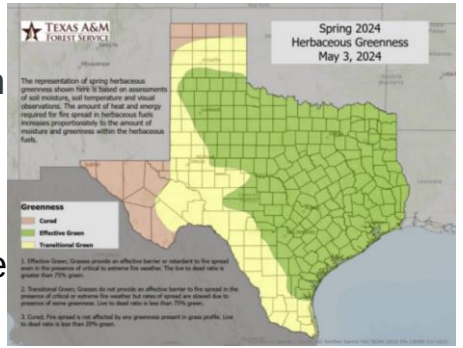
- **Drought designation (D0-Abnormally Dry) expanded into the northern Ranchlands in May. Meanwhile, (D1-Moderate Drought) expanded into the RGV in May.** 4” (depth) soil moisture fell to ….. by late May.
- Continued **“lean” toward a hot and dry early-mid summer** suggests **rapid onset drought** with **moderate to severe drought**, encompassing much of the region in June.
- **The forecast through late July remains a little uncertain** as upper level disturbances may bring one or two “coverage” rain events with fronts and/or tropical moisture feeds**.** If **rains are fleeting or nonexistent**, **drought will deepen/worsen**.

Wildfire Spread Potential Should Continue To Increase Through Mid-Summer

Transitional Green was present across all of Deep South Texas and the Rio Grande Valley at the end of May. Continued dryness and an early season heatwave in May, will accelerate the spread of **cured grassland** across the region in June (hence **"Rapid Onset/Flash Drought"** tag in effect for the area).

June will continue to be highly dependent on non-tropical storm systems. If such systems are seldom or not at all, wildfire growth potential will shift to **above average**. June happens to be one of our most active periods when it comes to late spring/early summer (non-tropical) thunderstorms – but 2022 and 2023 were largely free of them.

- **Mid to late July** will increasingly become dependent on tropical systems.

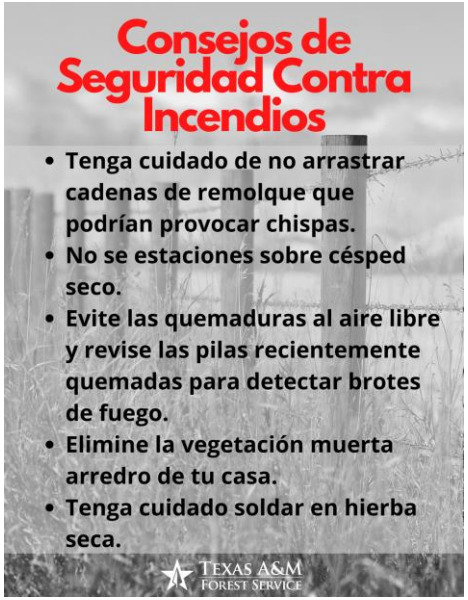


Herbaceous Green/Curing Map for Texas (May 3rd)

Wildfire Prevention Review

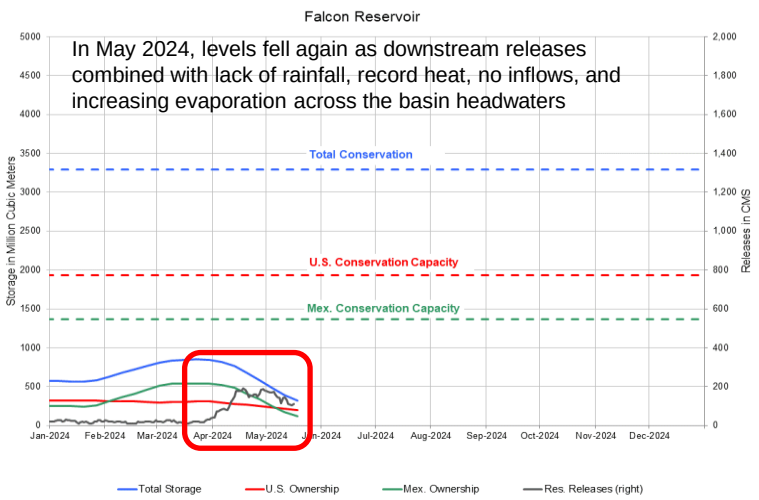
- This **remains critical through at least mid July,** especially if severe to extreme drought develops over fuel-loaded rangeland north of the populated Valley. A 400+ acre wildfire occurred in northeast Kenedy County in late April, and could be a harbinger for June into July.
- Continue to focus on **farm, ranch workers**, and **other persons who might drive hot vehicles** on parched brush on critical/near-critical days – especially low humidity, breezy days following fronts.

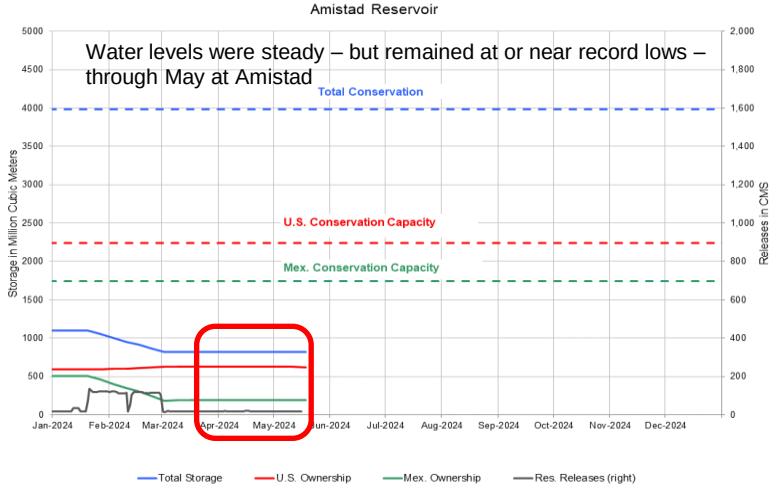
Infographics for Wildfire Prevention



- ~50 in all (20 in Spanish)!
- Thanks to **Texas A&M Forest Service** for Many of These

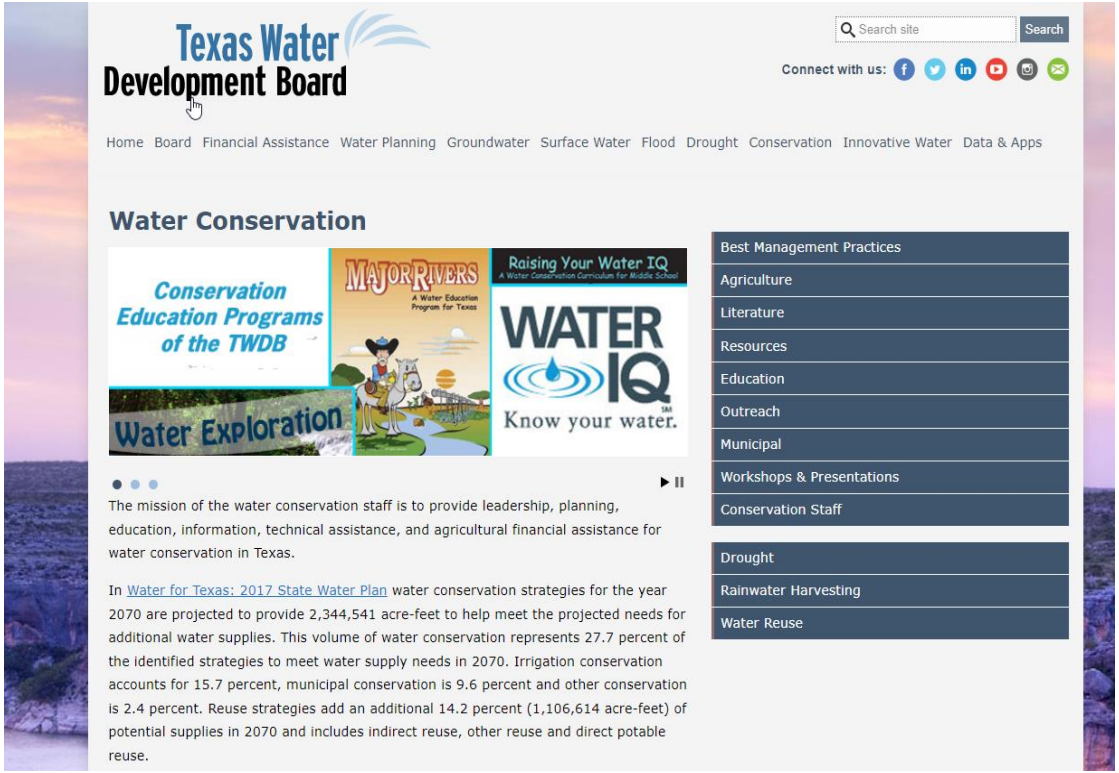
Falcon and Amistad were at Record Seasonal Lows at end of May





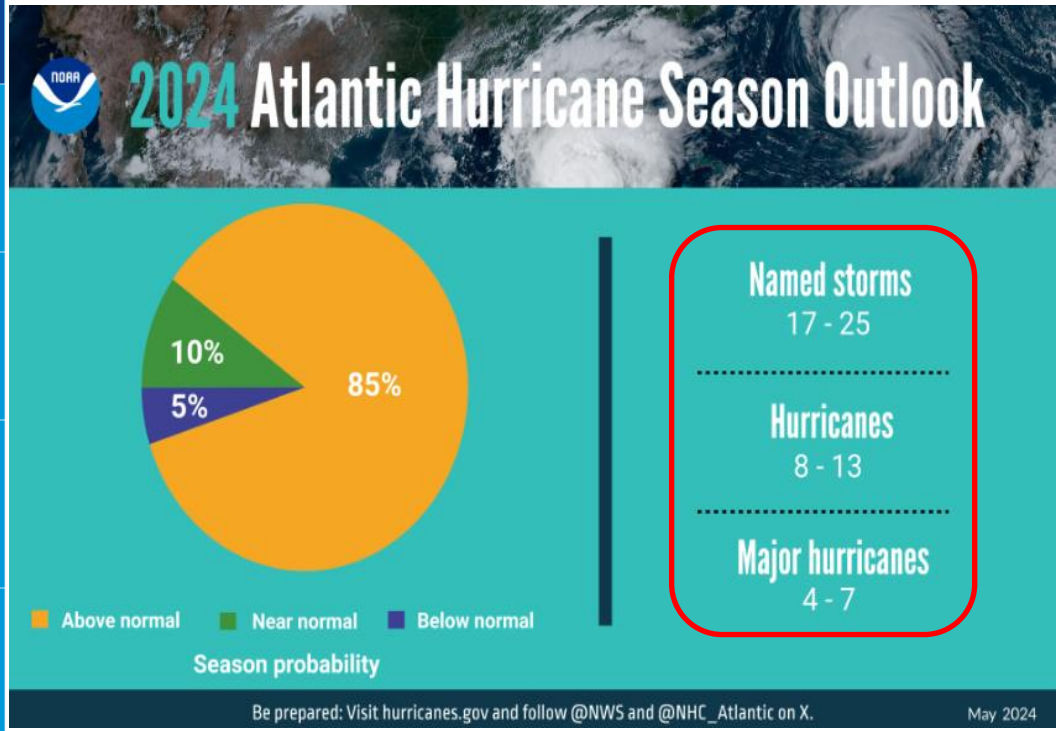
- Falcon continued a steady drop in May due to releases for downstream agriculture, lack of rainfall, no inflows, and increasing evaporation – to **8.8%, down from 17.1%** on April 25th . This level was a record low for this date. The forecast that favors below average rainfall in the watershed through at least mid July suggests **values will drop slowly through mid summer**, barring additional releases from Amistad, or organized thunderstorm systems that develop in the watershed.
- **Amistad** remained at/near **all-time record lows in late May**. Levels were at **20.1% on May 26th** – a little lower than on April 25th **(20.5%)** The late spring/early summer forecast strongly suggests **minimal inflows into Amistad while temperature and evaporation rates rise**. Without assistance, **levels are likely to fall into the upper teens in early June and remain through at least July**.

Water Conservation is Key Until Further Notice!



- "Stage 2/3" Restrictions continued through early winter and are likely to continue through at least June, based on inflows from Amistad and Falcon.
- Learn more at the Texas Water Development Board's Conservation Page

NOAA's 2024 Hurricane Outlook



Key Takeaway(s)

Predictions for named storms, hurricanes, and major hurricanes this season are the most ever!

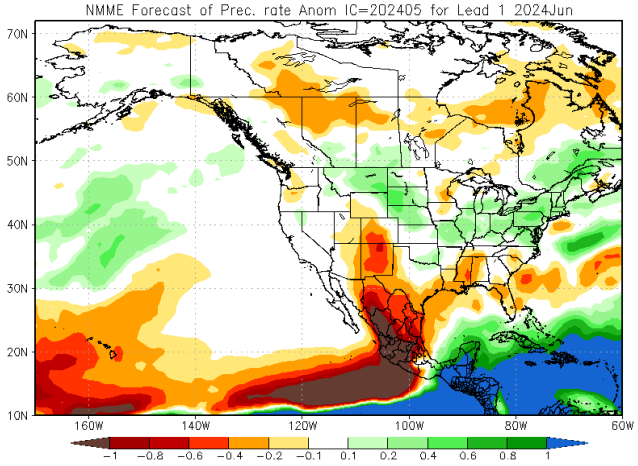
Contributing factors to a very active season:

- **Near record** (bath water) warm ocean temperatures.
- The **development of a La Nina**.
- **Low wind shear** (reduced Atlantic trade winds).

On average, a hurricane season produces 14 named storms, 7 hurricanes, and 3 major.

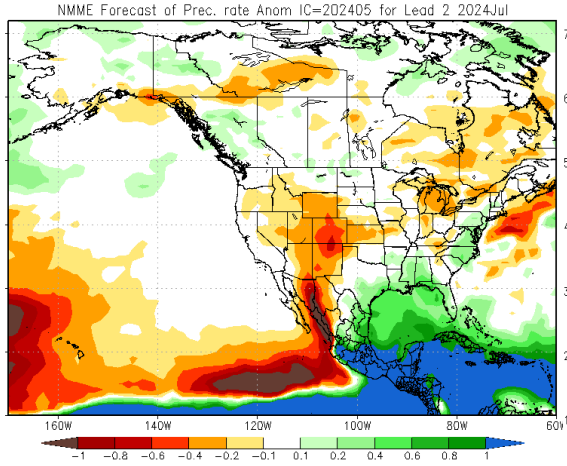
When Are We Most Concerned?

June



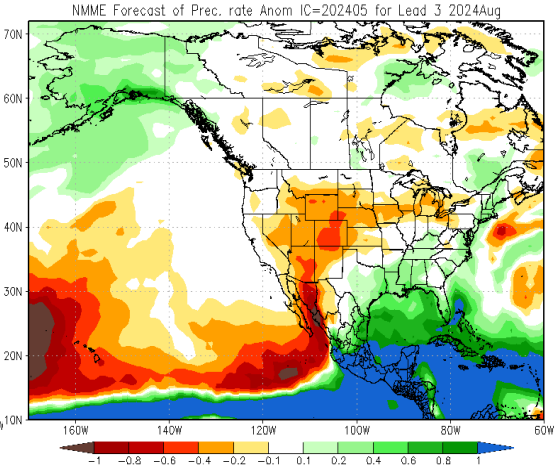
Probably Not

July



Maybe Late

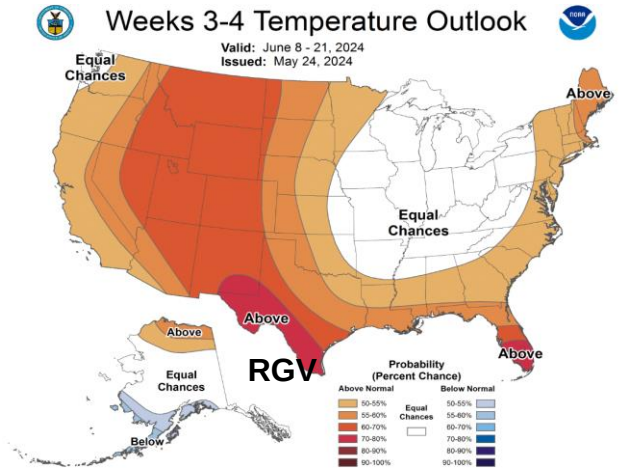
August

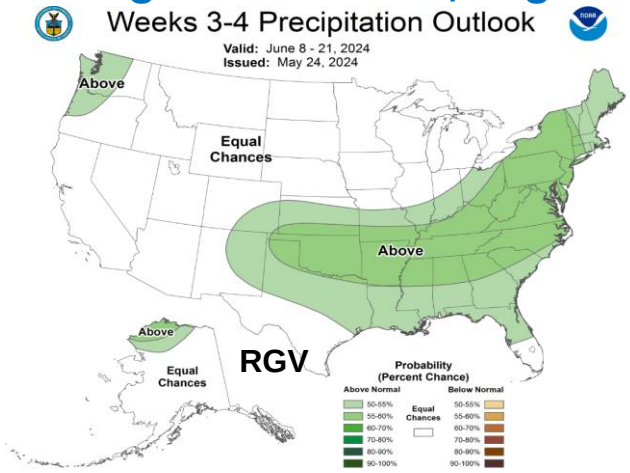


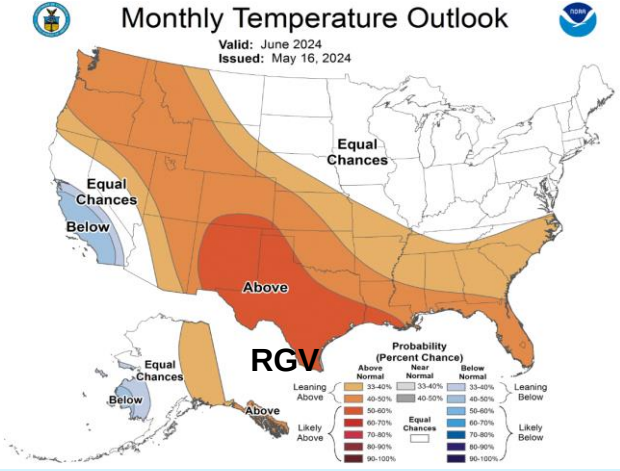
Yes

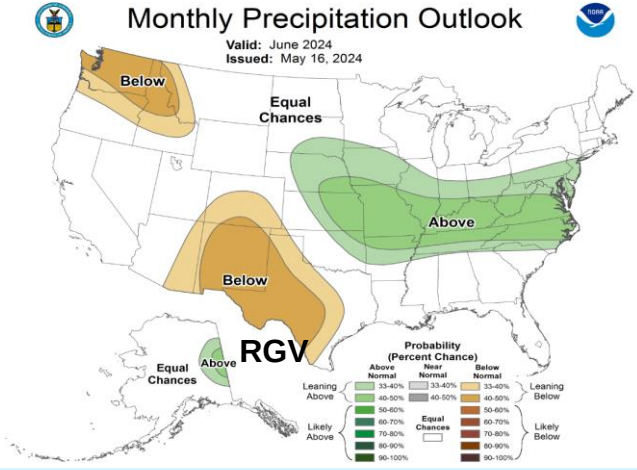
Above: National Multi-Model Ensemble (NMME) forecast for monthly rainfall rate departures from average. Orange/maroon colored areas suggest below average; green and blue above average. Note the spreading of green into Texas and the Gulf coast in August.

June 2024: Confidence: Medium-High on Rainfall; High on Temperature







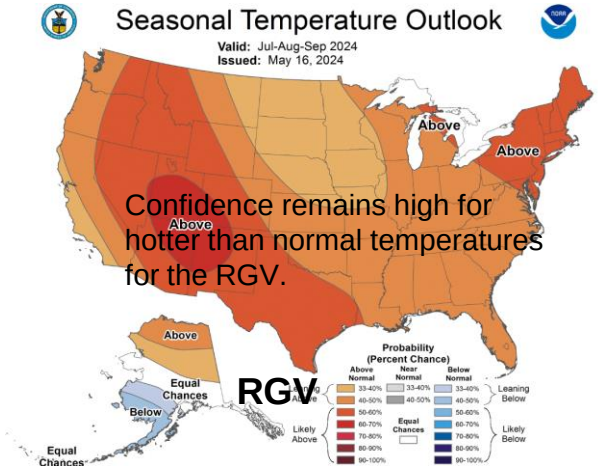


While forecast models signal the **heat ridge (core of the searing heat)** **shifting west** into the Desert Southwest and Northern Rockies through at least early June (a +PNA signal), the heat ridge will be in close enough proximity to keep a **hotter than normal June** theme in play for RGV/Deep S. Texas ranchlands

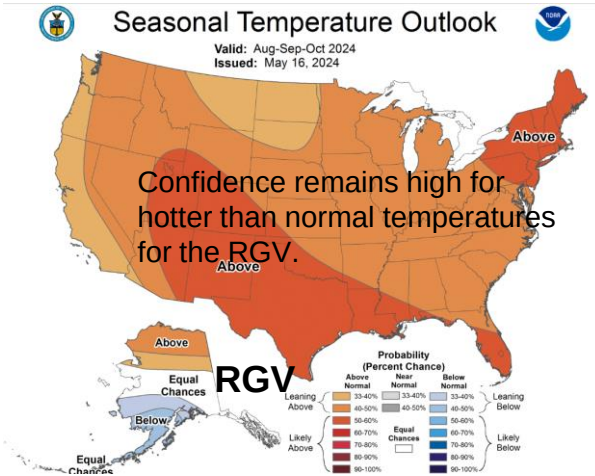
While early **June** *may* provide **one or two opportunities of beneficial rainfall via thunderstorms**, most of the activity will be further to our north where the storm track and frontal boundaries are more active/prominent.

Bottom Line: It will take a **tropical cyclone or a series of tropical waves** to mitigate the ongoing dryness across the region. Our **dependency on tropical moisture is critical** this upcoming season.

Mid-Summer 2024 into Autumn 2024: Dryness and Heat Becoming More Likely; Tropical Season Dependency Critical



Confidence remains high for hotter than normal temperatures for the RGV.



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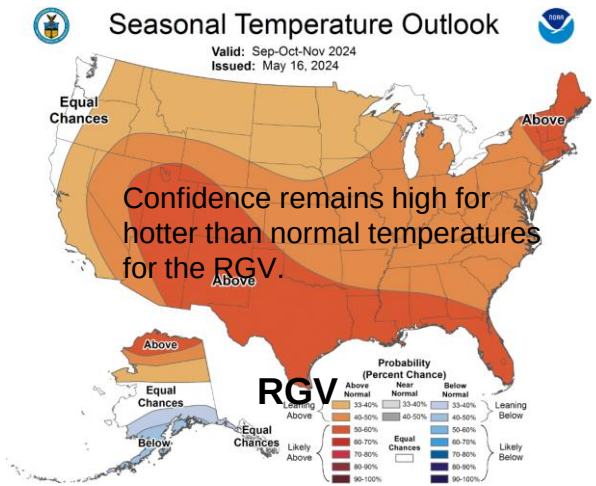

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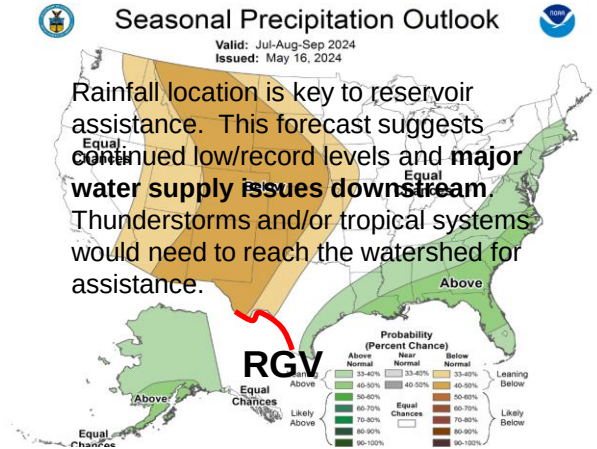
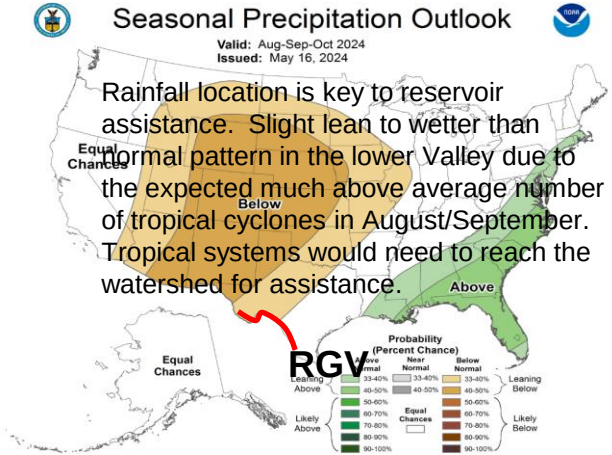
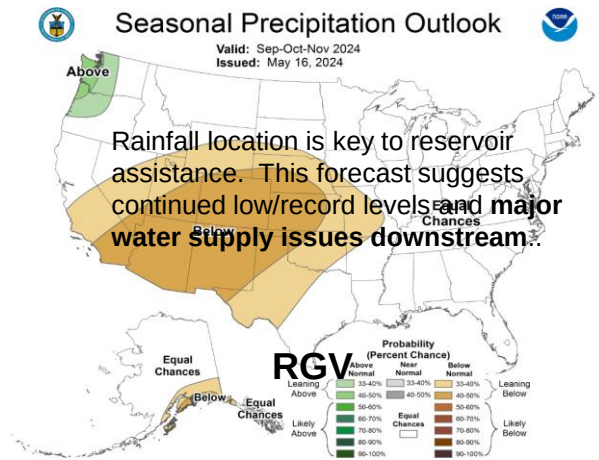


Rainfall location is key to reservoir assistance. This forecast suggests continued low/record levels and **major water supply issues downstream**. Thunderstorms and/or tropical systems would need to reach the watershed for assistance.

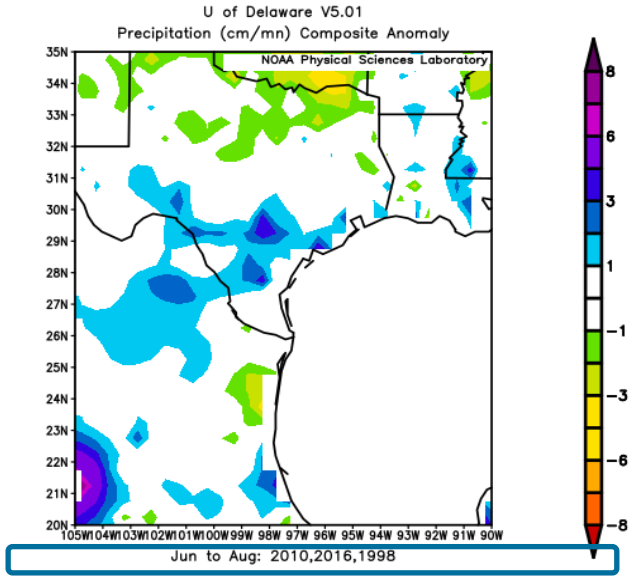


Rainfall location is key to reservoir assistance. Slight lean to wetter than normal pattern in the lower Valley due to the expected much above average number of tropical cyclones in August/September. Tropical systems would need to reach the watershed for assistance.

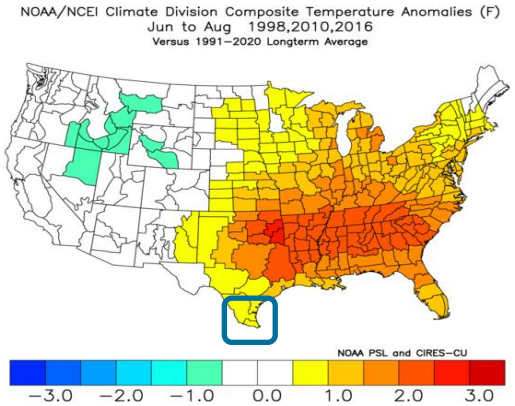


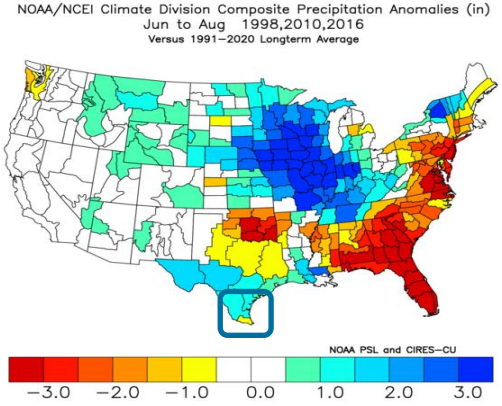
Rainfall location is key to reservoir assistance. This forecast suggests continued low/record levels and **major water supply issues downstream**.

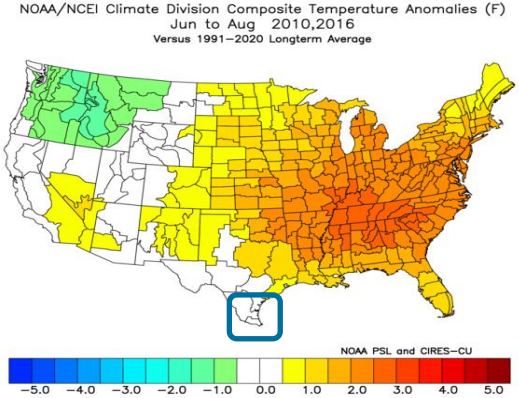
Comparing Similar El Niño to La Nina Episodes within the last 30 years; June-August Periods

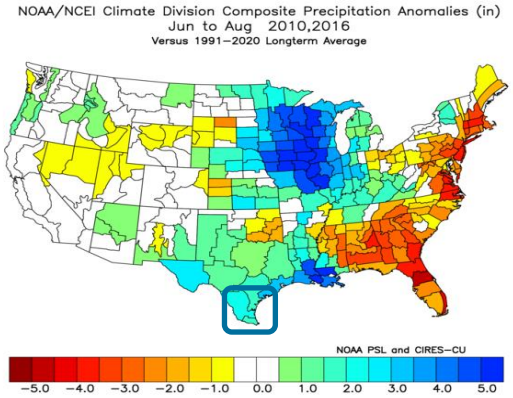


Composite departure from average rainfall for years where the Oceanic Niño Index (ONI) increased to moderate (1 to 1.4), strong (1.5 to 1.9), or “super” (≥2.0) levels prior to the May-July window.









- **Top:** Composite temperature (left) and precipitation (right) anomalies for moderate/strong/”super” El Niños leading into May-July, since 1950.
- **Bottom:** Same, except for most recent cases (2009/10 and 2015/16).

Bottom Lines

- **No inflows** are expected from Mexican reservoirs serving the Lower Rio Grande watershed during the June-July 2024 period. **Combined share of water in Amistad and Falcon now likely to continue well below Stage 2 and 3 triggers (well below 25%) through at least July.** Water conservation, smart irrigation , and rainwater harvesting are **critical actions to continue**. A ***water crisis is unfolding*** for agriculture, and is likely to develop for some municipalities.
- It's **likely that drought expands/worsens across the region by late June and July**. Drought spread/intensification will be predicated on **limited to no areawide thunderstorm events; multiple events would slow or hold off worsening drought**. Prolonged spells of hot weather with low to moderate humidity would bring severe-extreme (Level 2-3 of 4) drought as soon as early June to parts of the area. The combination of increasing heat (evaporation) and very limited water releases would have ***major to devastating*** **impact on the crop and livestock industry**.
- The likely flip to La Niña this summer, could be a harbinger of wildfire spread potential – after a warm and dry May. **June-July begins a critical period**.
- **Severe Weather? June** offers last primary opportunity, as surface temperatures warm with the sun and instability increases. However, *much would depend on the jet stream placement, strength of upper level disturbances, and low to mid level forcing*. **A drier pattern, especially in June, would reduce opportunity**. Because of these factors, **confidence remains rather low**. Typical threats would be **hail**, followed by **damaging wind** and **flooding rain.**
- **Early tropical activity? Late June can be a wildcard**. Current trends suggest **"La Canicula**"- the pattern of atmospheric high pressure that extends from Coahuila/Chihuahua southeast through the Valley and western Gulf**, may develop in early to mid June and further exacerbate searing heat, humidity – and no rain.** However, a **brief pattern** shift in late June could allow a **June 2018 event (tropical wave/trough) to slide in from the east and provide beneficial rain**.