

Drought Indicators Report

Georgia Environmental Protection Division

October 2023

Background

Pursuant to the Rules for Drought Management, Section 391-3-3-.04 Drought Indicators and Triggers, the Director of EPD monitors climatic indicators and water supply conditions to assess drought occurrence and severity, and its impact upon the ability of public water systems to provide adequate supplies of water. These indicators and conditions September include, but not be limited, to the following:

- U.S. Drought Monitor;
- Precipitation;
- Streamflow;
- Groundwater;
- Reservoir levels;
- Short term climate predictions;
- Soil moisture; and
- Water supply conditions.

Background

- The Rules require EPD to report on current climatic indicators at least semi-annually or monthly when any part of the state has experienced at least two consecutive months of severe drought.
- This reports compare current conditions to historical levels (and/or reservoir rule curves) for each of the following indicators:
 - Precipitation during the prior 3, 6, and 12 months;
 - Streamflow at the select United States Geological Survey gages;
 - Groundwater levels at select United States Geological Survey monitoring wells; and
 - Reservoir levels at Allatoona Lake, Lake Hartwell, Clarks Hill Lake, and Lake Lanier.
- The following sections of this presentation provide the data and information sources analyzed by EPD in developing this drought indicators report for conditions as of October 9, 2023.

Drought Indicator Analysis Summary (slide 1 of 3)

- U.S. Drought Monitor – Abnormally Dry (D0, the least intense level) exists in Chattahoochee, Flint, Coosa, Tennessee, and Upper Savannah Basins, and a few counties in the coastal area. Moderate drought (D1) exists in northwest corner, southwest corner, Middle Chattahoochee, and Upper Savannah Basin. Severe drought (D2) exists in two counties (Seminole and Decatur) in Southwest corner of GA.
- Precipitation – Three-month precipitation is below normal in most areas except Altamaha, Satilla and Lower Savannah Basins. Six-month precipitation is slightly below normal in five counties (Rabun Seminole, Decatur, Grady, and Miller). Twelve-month precipitation is below normal in Rabun County, Chatham County, and 14 Counties in southwest GA.
- Soil Moisture – Soil moisture conditions are below normal in seven Counties(Harris, Talbot, Taylor, Upson, Quitman, Randolph, and Clay).

Drought Indicator Analysis Summary (slide 2 of 3)

- **Streamflow** – Stream flows at 15 selected USGS gages (15 out of 34) are near or above normal. Five gages are between the lowest 10th and 20th percentiles and 14 gages are between the lowest 20th percentile and median.
- **Groundwater Level** – Groundwater levels are above or near normal in six selected wells (6 out of 17). Five well levels are between the lowest 20th percentile and median. Four well levels are between the lowest 10th and 20th percentiles. One well level (Floridan Aquifer in Flint Basin) is between the lowest 10th and 5th percentiles. Another well level (Crystalline Rock Aquifer in Chattahoochee Basin) is between 5th percentile and minimum.
- **Reservoir Levels** – At the end of September, Caters and Allatoona are in zone 1. Other federal reservoirs in Georgia (ACF and Savannah River Basins) are in zone 2. ACF composite storage is in zone 2. US Army Corps of Engineers (Savannah District) declared the first drought level of three reservoirs on the Upper Savannah River on Sept. 10, 2023 in response to the pool elevation at J. Strom Thurmond Lake dipping below 326.0 feet above mean sea level (ft-msl).

Drought Indicator Analysis Summary (slide 3 of 3)

- Short-term Climate Prediction – National Climatic Prediction Center projects above normal temperature in southern GA and above normal precipitation statewide in October – December 2023. U.S. Drought Outlook predicts drought removal likely in northwest corner and southwest corner of GA in October – December 2023.
- Water Supplies – No issues with water availability to water supply providers were reported.

US Drought Monitor

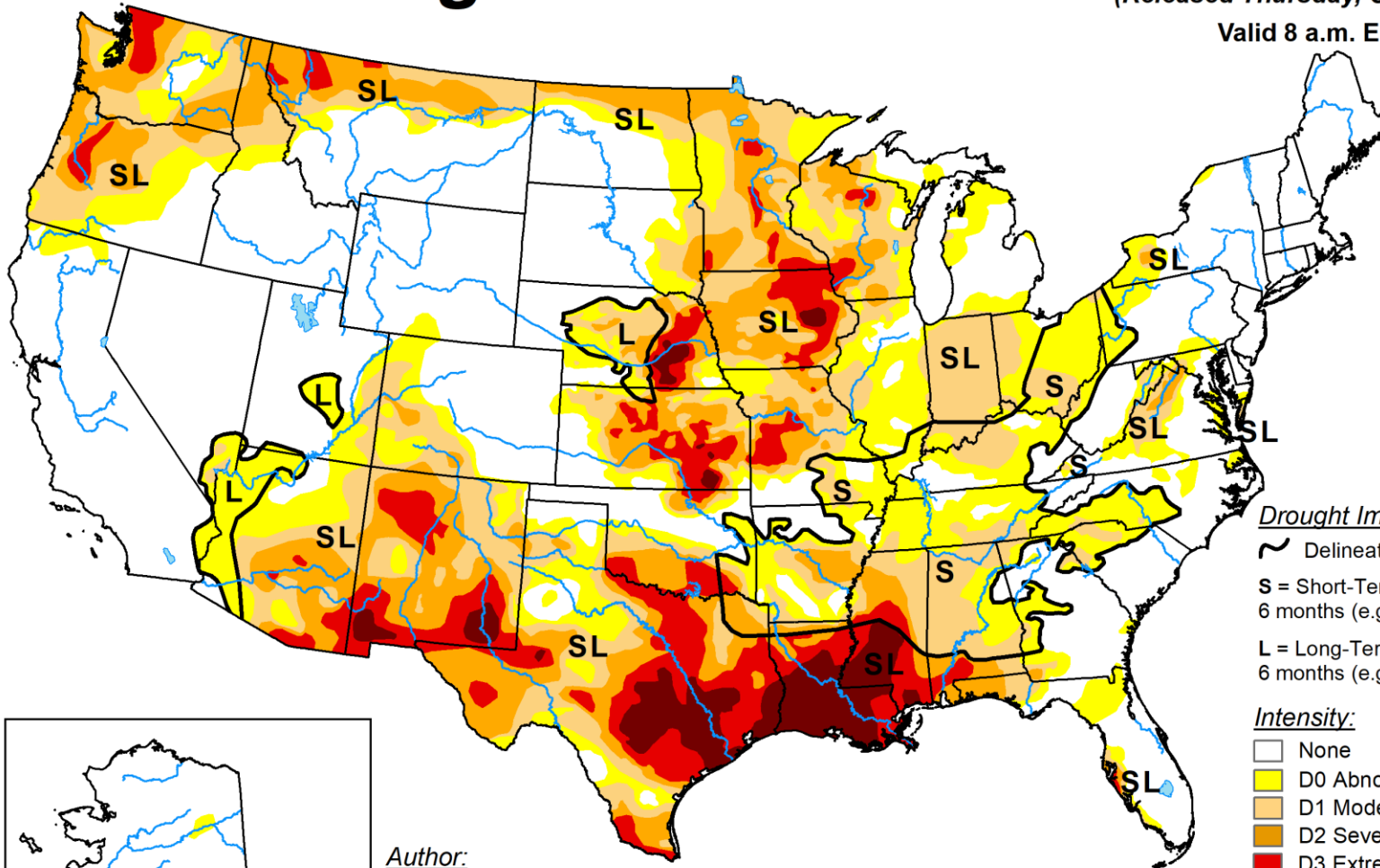
Data Source:
<http://droughtmonitor.unl.edu/>

U.S. Drought Monitor

October 3, 2023

(Released Thursday, Oct. 5, 2023)

Valid 8 a.m. EDT

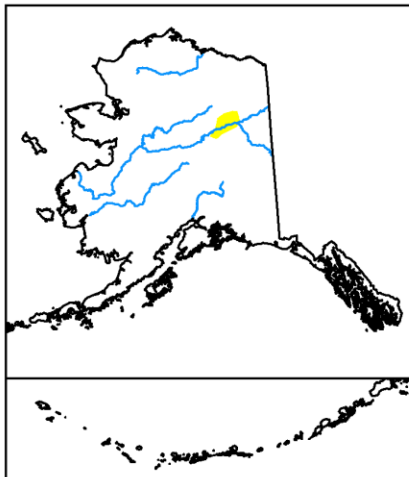


Drought Impact Types:

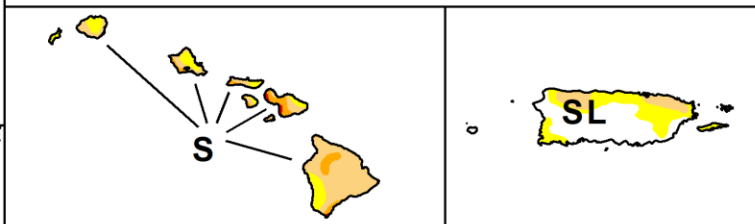
- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought



Author:
Brad Pugh
CPC/NOAA



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>



droughtmonitor.unl.edu

U.S. Drought Monitor

Georgia

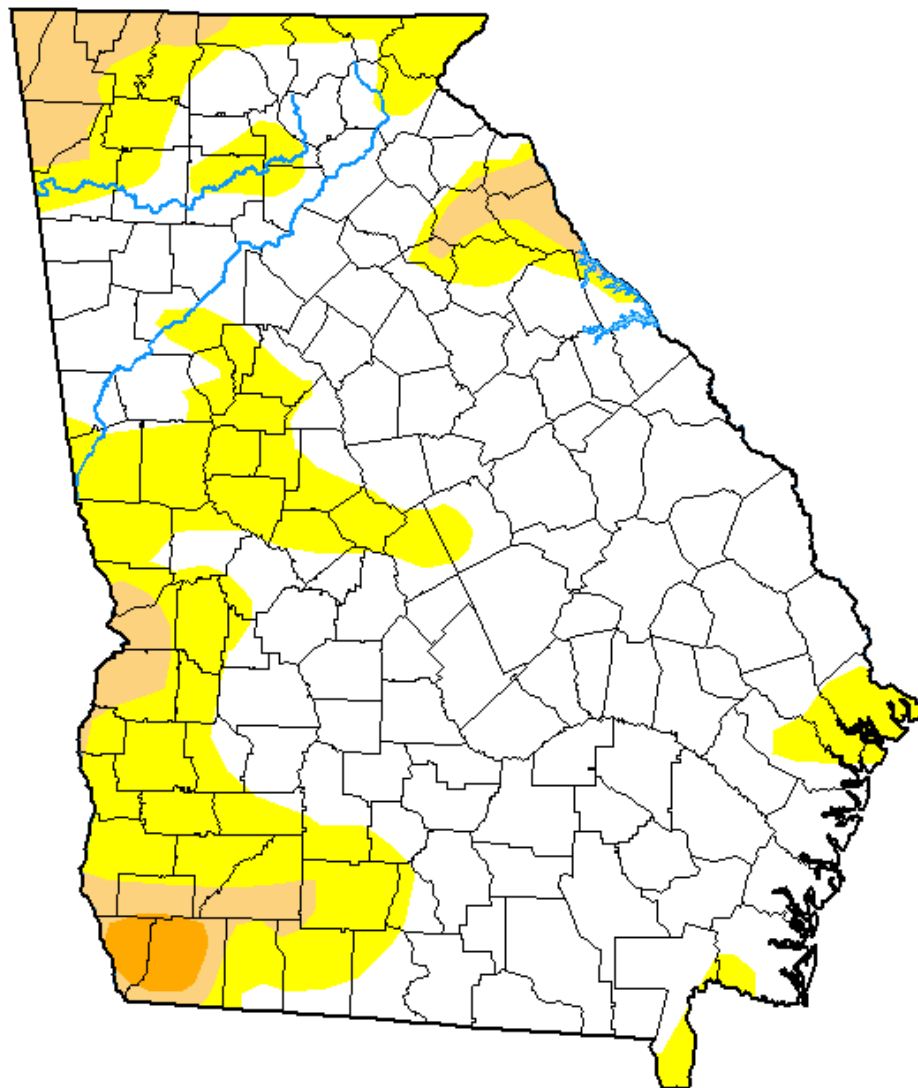
October 3, 2023

(Released Thursday, Oct. 5, 2023)

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Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	68.14	31.86	7.38	0.97	0.00	0.00
Last Week 09-26-2023	78.43	21.57	4.17	0.00	0.00	0.00
3 Months Ago 07-04-2023	96.86	3.14	0.00	0.00	0.00	0.00
Start of Calendar Year 01-03-2023	46.36	53.64	28.04	4.81	0.00	0.00
Start of Water Year 09-26-2023	78.43	21.57	4.17	0.00	0.00	0.00
One Year Ago 10-04-2022	70.82	29.18	2.48	0.00	0.00	0.00



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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droughtmonitor.unl.edu

3, 6, and 12 Month Precipitation Anomaly

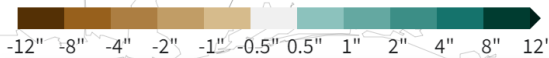
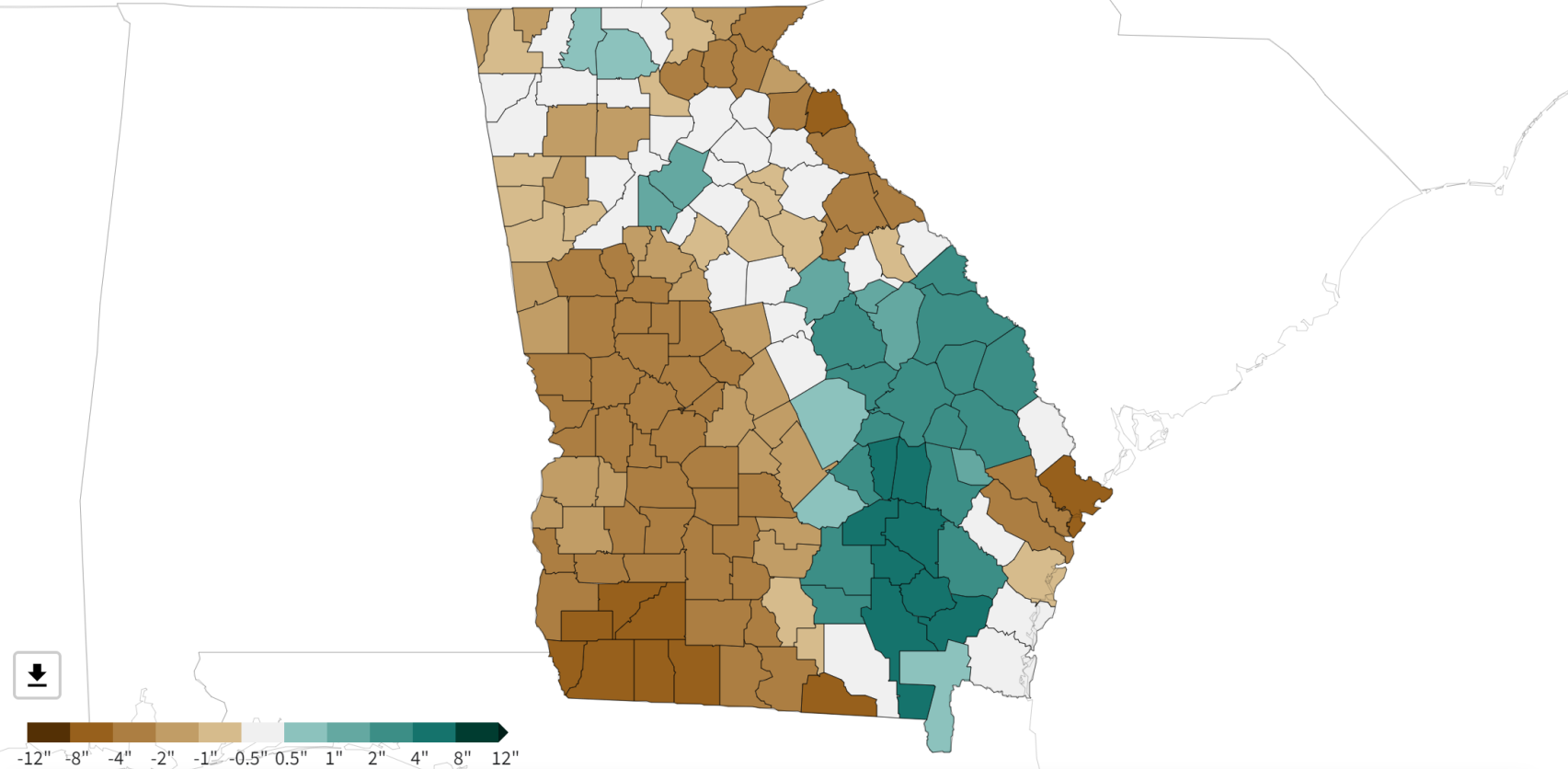
Data Source:

<https://www.ncdc.noaa.gov/cag/county/mapping/>

3 Month Precipitation Anomaly

County Precipitation Anomaly

July - September 2023



Georgia (Hover over a County)

Precip: 13.70"

Rank: 54th Driest

Anomaly: -0.74"

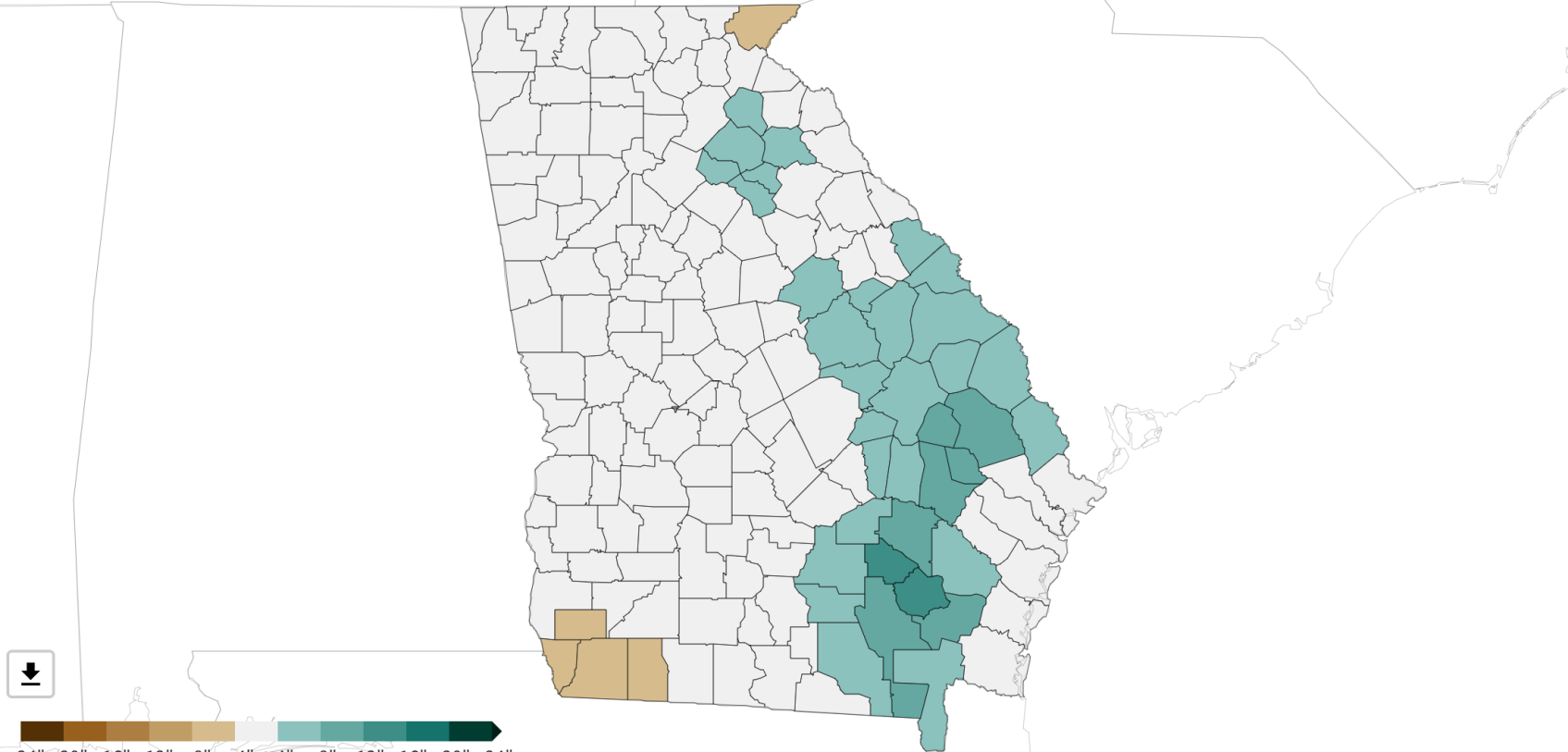
Mean: 14.44"



6 Month Precipitation Anomaly

County Precipitation Anomaly

April - September 2023



Georgia (Hover over a County)

Precip: 28.35"

Rank: 41st Wettest

Anomaly: 1.90"

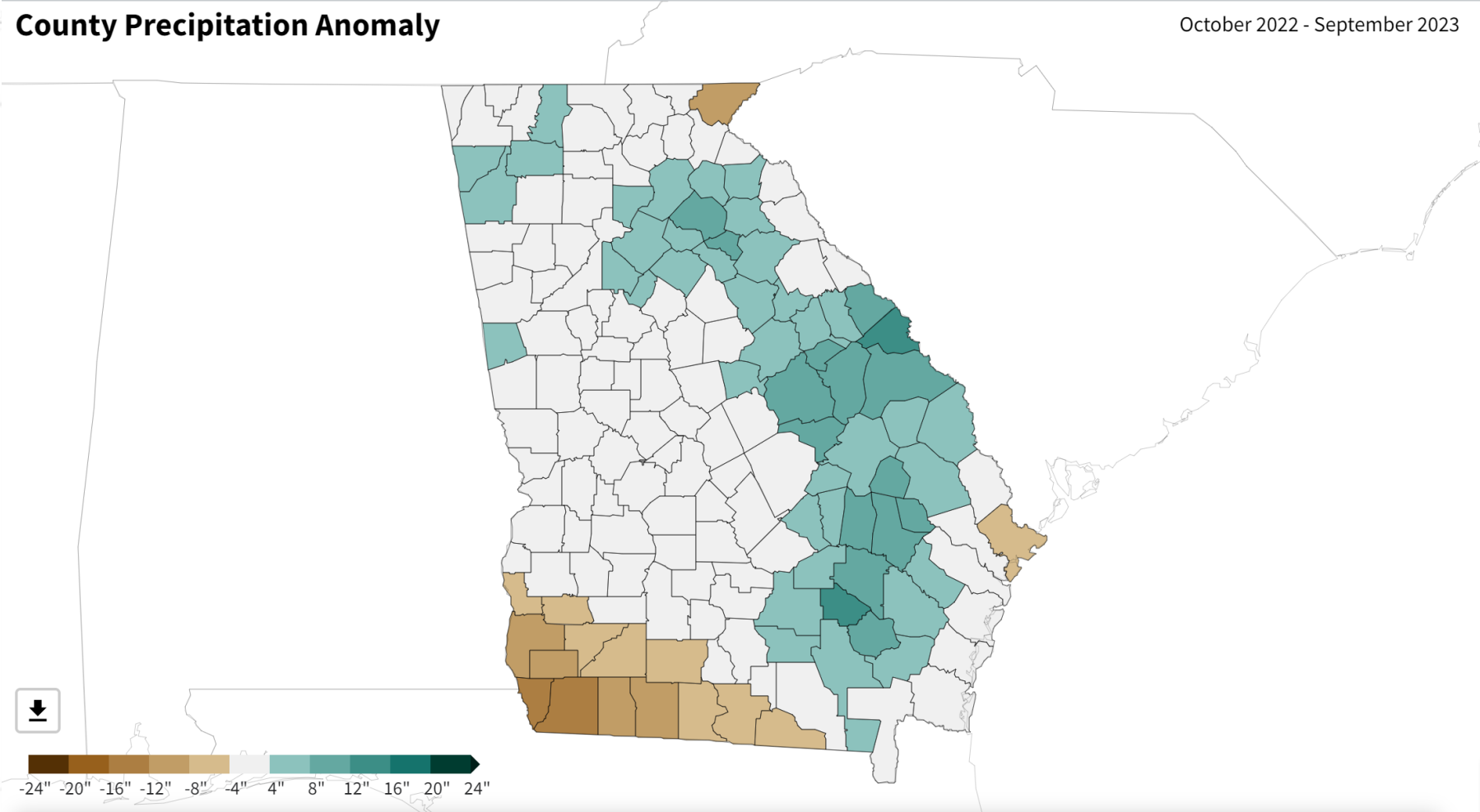
Mean: 26.45"



12 Month Precipitation Anomaly

County Precipitation Anomaly

October 2022 - September 2023



Georgia *(Hover over a County)*

Precip: 52.07"

Rank: 49th Wettest

Anomaly: 1.95"

Mean: 50.12"

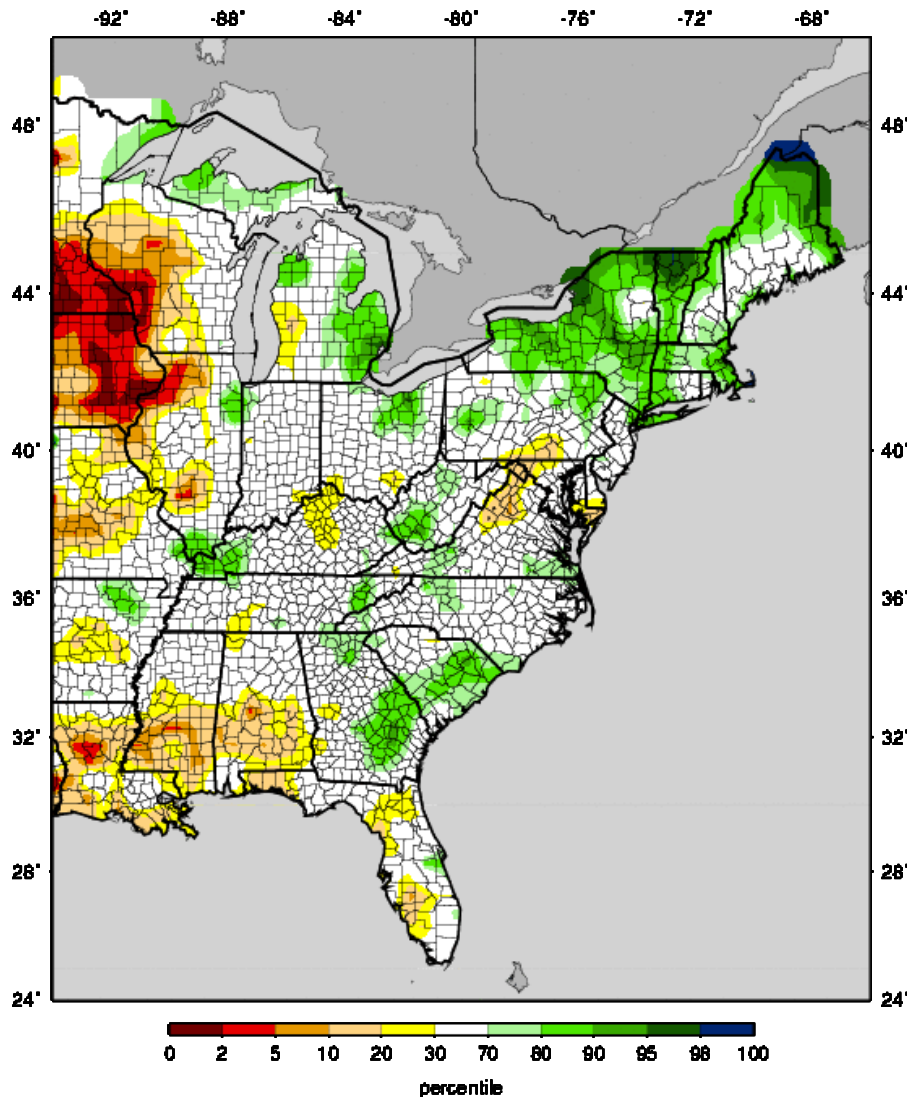


Soil Moisture Conditions

Data Source:

http://www.hydro.ucla.edu/SurfaceWaterGroup/forecast/monitor/curr/conus.mexico/east.vic.sm_qnt.gif

VIC Soil Moisture Percentiles (wrt/ 1916-2004)
Eastern United States - 20230000



Current (Daily updated) percentiles for soil moisture (SWE) with respect to the climatological period (1916-2004).

Streamflow Conditions

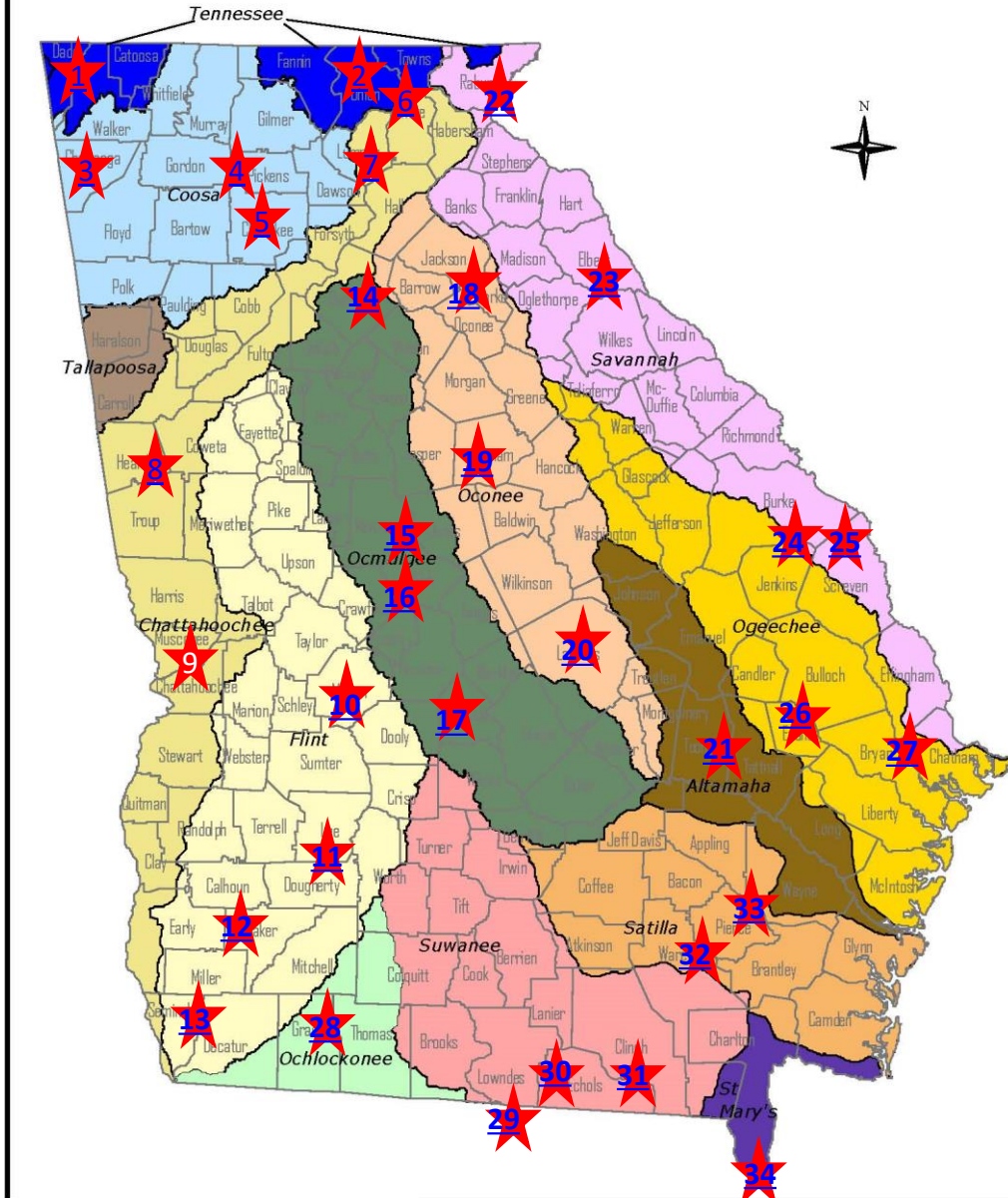
Data Source: USGS

Streamflow Monitoring

- As shown on the following slide, EPD Monitors 34 USGS stream gages in 13 of the State's major river basins to assess drought conditions.
- These gages were selected because each has:
 - Long-term and relatively complete records for recent decades; and
 - Relatively low consumptive water use implications and streamflows are not heavily influenced by dams.
- Note: Hydrologic conditions of major rivers with streamflows that are heavily influenced by dams can be assessed by reviewing status of major storage reservoirs

Georgia's 14 River Basins

USGS Stream Gages Monitored by EPD to Assess Drought Conditions



<u>GAGE#</u>	<u>Basin</u>	<u>GAGE NAME</u>
1	TENNESSEE	LOOKOUT CREEK NEAR NEW ENGLAND
2	TENNESSEE	NOTTELY RIVER NEAR BLAIRSVILLE
3	COOSA	CHATTOOGA RIVER AT SUMMERVILLE
4	COOSA	TALKING ROCK CREEK NEAR HINTON
5	COOSA	ETOWAH RIVER AT CANTON
6	CHATTAHOOCHEE	CHATTAHOOCHEE RIVER AT CORNELIA
7	CHATTAHOOCHEE	CHESTATEE RIVER NEAR DAHLONEGA
8	CHATTAHOOCHEE	NEW RIVER AT GA 100 NEAR CORINTH
9	CHATTAHOOCHEE	UPATOI CREEK AT COLUMBUS
10	FLINT	FLINT RIVER AT GA26 NEAR MONTEZUMA
11	FLINT	FLINT RIVER AT ALBANY
12	FLINT	ICHAWAYNOCHAWAY CREEK AT MILFORD
13	FLINT	SPRING CREEK NEAR IRON CITY
14	OCMULGEE	ALCOVY RIVER ABOVE COVINGTON
15	OCMULGEE	OCMULGEE RIVER AT MACON
16	OCMULGEE	TOBESOFKEE CREEK NEAR MACON
17	OCMULGEE	TUCSAWHATCHEE CREEK NEAR HAWKINSVILLE
18	OCONEE	MIDDLE OCONEE RIVER NEAR ATHENS
19	OCONEE	LITTLE RIVER NEAR EATONTON
20	OCONEE	OCONEE RIVER AT DUBLIN
21	ALTAMAHA	OHOOPPEE RIVER NEAR REIDSVILLE
22	SAVANNAH	CHATTOOGA RIVER NEAR CLAYTON
23	SAVANNAH	BROAD RIVER NEAR BELL
24	SAVANNAH	BEAVERDAM CREEK NEAR SARDIS
25	SAVANNAH	BRIER CREEK AT MILLHAVEN
26	OGEECHEE	CANOOCHEE RIVER NEAR CLAXTON
27	OGEECHEE	OGEECHEE RIVER NEAR EDEN
28	OCHLOCKONEE	OCHLOCKONEE RIVER NEAR THOMASVILLE
29	SUWANEE	WITHLACOOCHEE RIVER NEAR PINETTA FL
30	SUWANEE	ALAPAHA RIVER AT STATENVILLE
31	SUWANEE	SUWANNEE RIVER AT US 441, AT FARGO
32	SATILLA	SATILLA RIVER NEAR WAYCROSS
33	SATILLA	LITTLE SATILLA RIVER NEAR OFFERMAN
34	ST MARY'S	ST MARYS RIVER NEAR MACCLENNY FL

Streamflow Graphs

- For each of the 34 gages, EPD has prepared a graph that shows monthly average streamflow from January 2023 through September 2023;
- To help put these streamflow conditions into perspective, for comparison purposes, each graph also shows:
 - Monthly average streamflows for the years 2007 and 2011 when streamflows were at or near recorded low levels across much of the state; and
 - A statistical composite of historical conditions showing the “driest” 50, 20, 10, and 5 percent of all recorded monthly average stream flows at the same gage.

How to Read the Streamflow Graphs

Example #1: Etowah River at Canton

The streamflow graph for Gage #5, [USGS Etowah River gage at Canton](#) shows :

- Average stream flow in September 2023 was 375 cfs. The statistical composite of all historical data for this gage shows that average streamflow in September has historically been lower than September 2023 about 20% of the time; 80% of the time in September it has been higher.
- Average stream flow in September 2011 was 341 cfs. The statistical composite of all historical data for this gage shows that average streamflow in September has historically been lower than September 2011 about 10~20% of the time; 80~90% of the time in September it has been higher.
- Average stream flow in September 2007 was 130 cfs. The statistical composite of all historical data for this gage shows that average streamflow in September has historically been lower than September 2007 about 0.1 % of the time; 99.9 % of the time in September it has been higher.

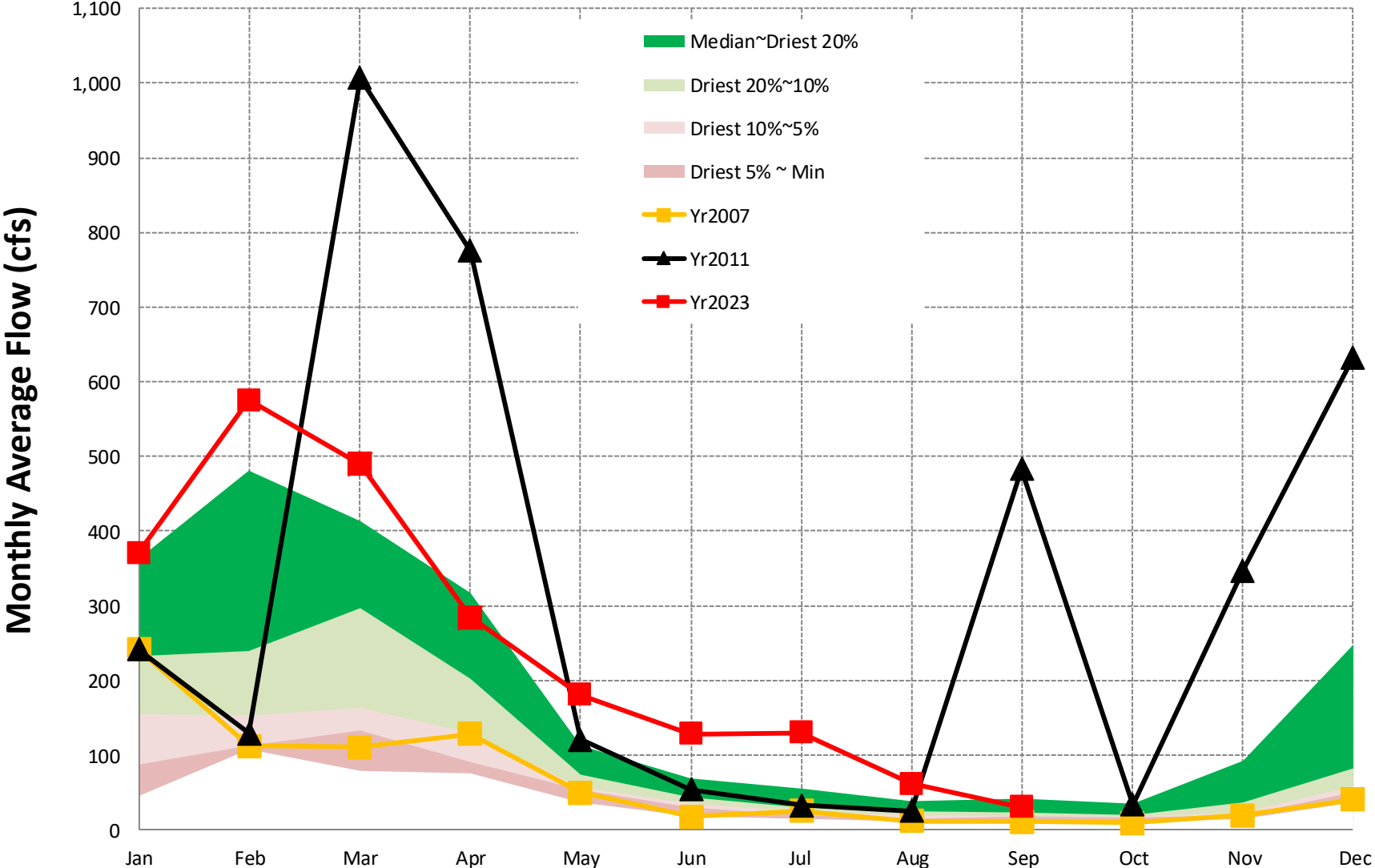
How to Read the Streamflow Graphs

Example #2: Flint River at Albany

The streamflow graph for Gage #11, [USGS Flint River gage at Albany](#) shows:

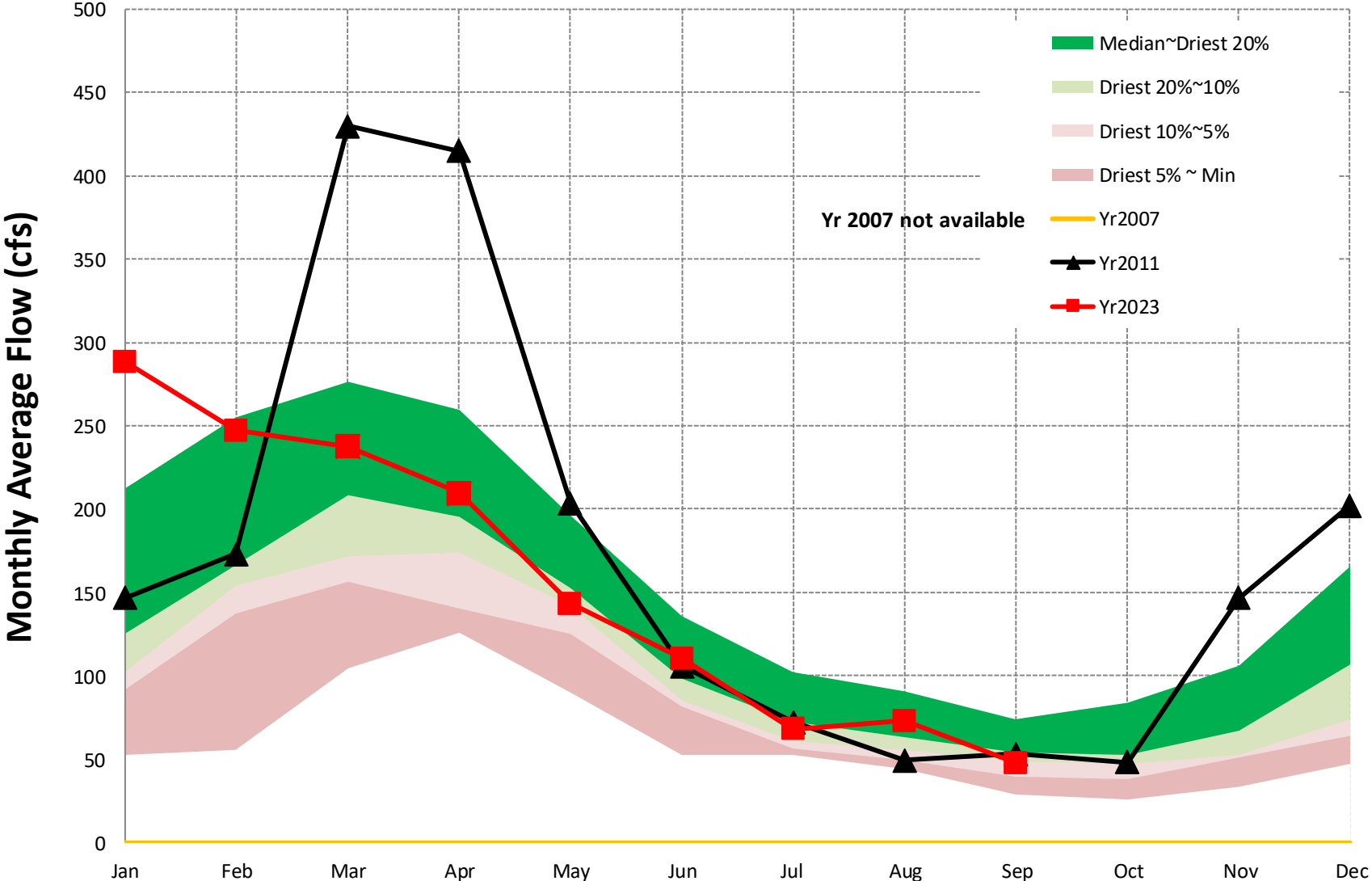
- Average stream flow in September 2023 was 1446 cfs. The statistical composite of all historical data for this gage shows that average streamflow in September has historically been lower than September 2023 about 9% of the time; about 91% of the time in September it has been higher.
- Average stream flow in September 2011 was 764 cfs. The statistical composite of all historical data for this gage shows that average streamflow in September has historically been lower than September 2011 about 0.1 % of the time; about 99.9% of the time in September it has been higher.
- Average stream flow in September 2007 was 1385 cfs. The statistical composite of all historical data for this gage shows that average streamflow in September has historically been lower than September 2007 about 5~10% of the time; about 90~95% of the time in September it has been higher.

Gage #1. USGS #03568933, Tennessee Basin, LOOKOUT CREEK NEAR NEW ENGLAND, GA



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Gage #2, USGS #03550500, Tennessee Basin, NOTTELY RIVER NEAR BLAIRSVILLE, GA

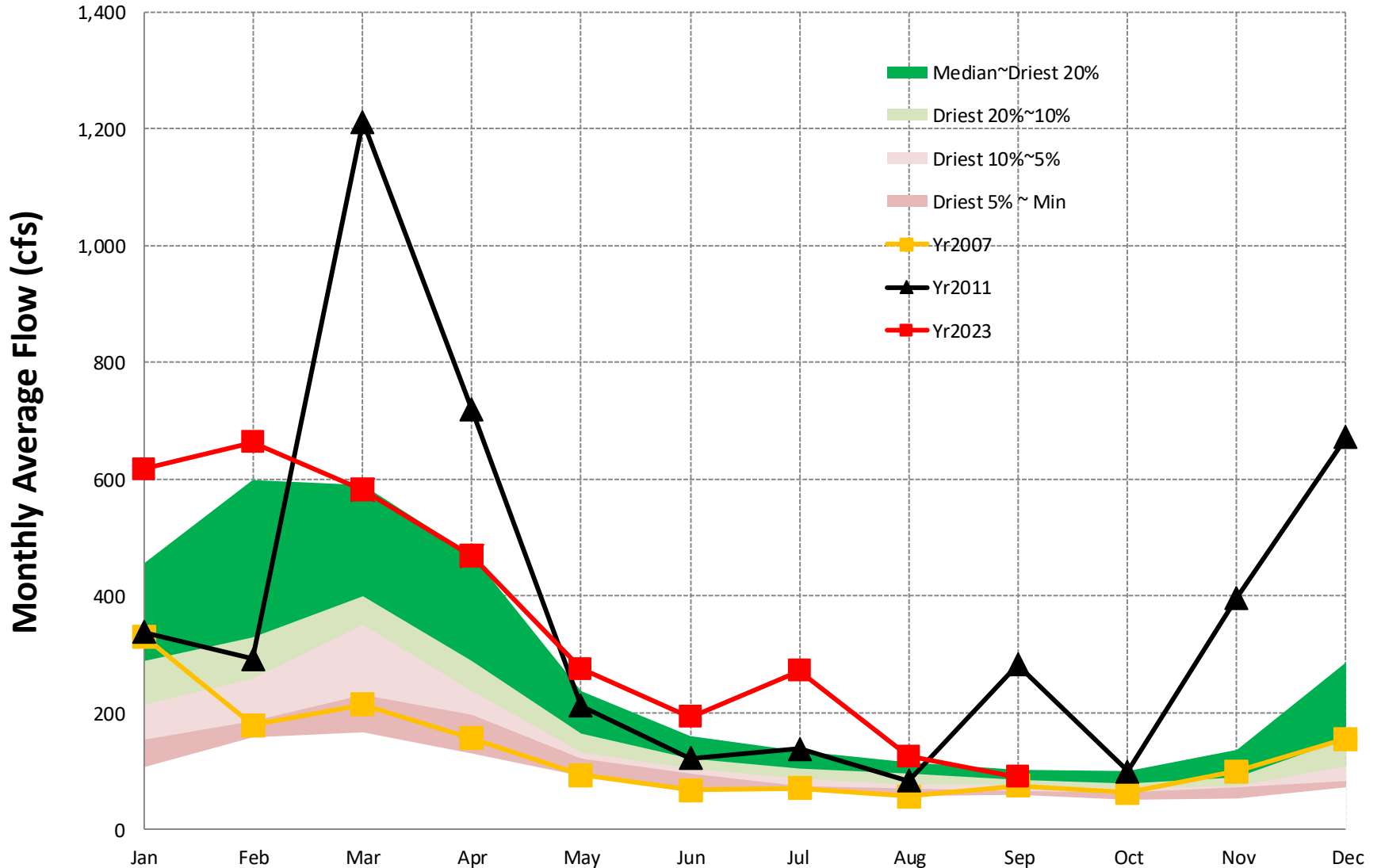


Yr 2007 not available

- Median~Driest 20%
- Driest 20%~10%
- Driest 10%~5%
- Driest 5% ~ Min
- Yr2007
- ▲ Yr2011
- Yr2023

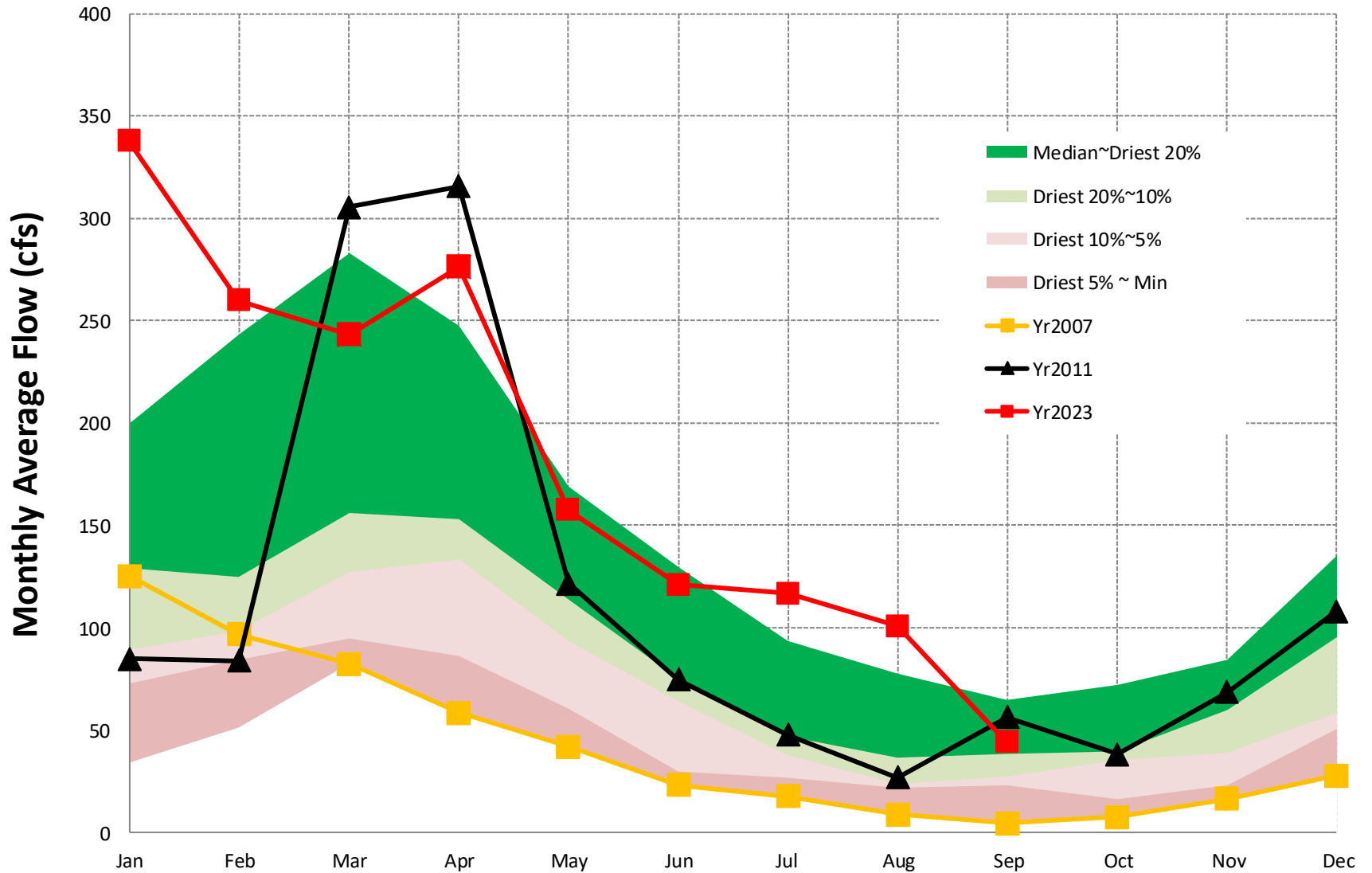
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Gage #3. USGS #02398000, Coosa Basin, Chattooga River at Summerville, GA



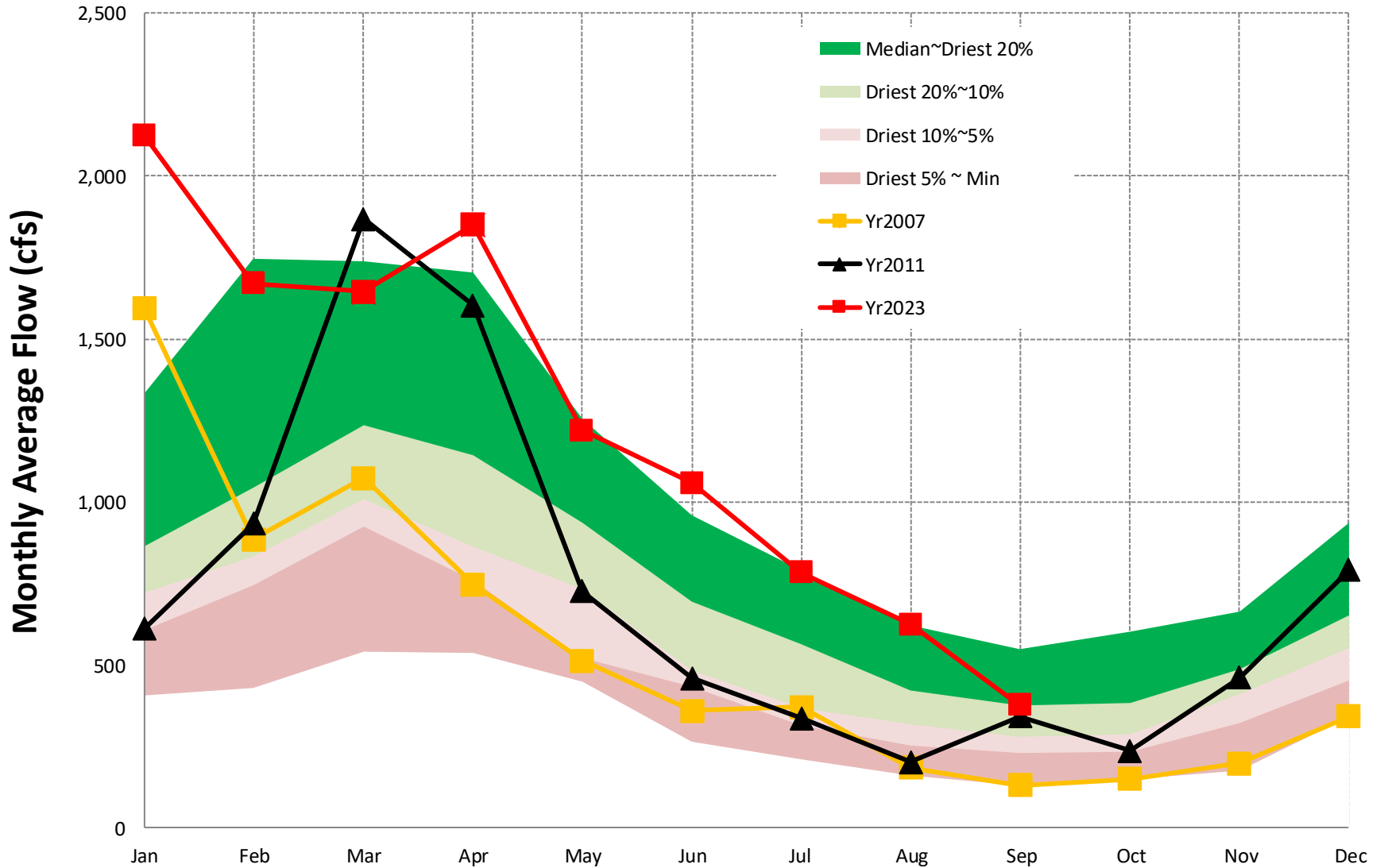
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Gage #4, USGS #02382200, Coosa Basin, TALKING ROCK CREEK NEAR HINTON, GA



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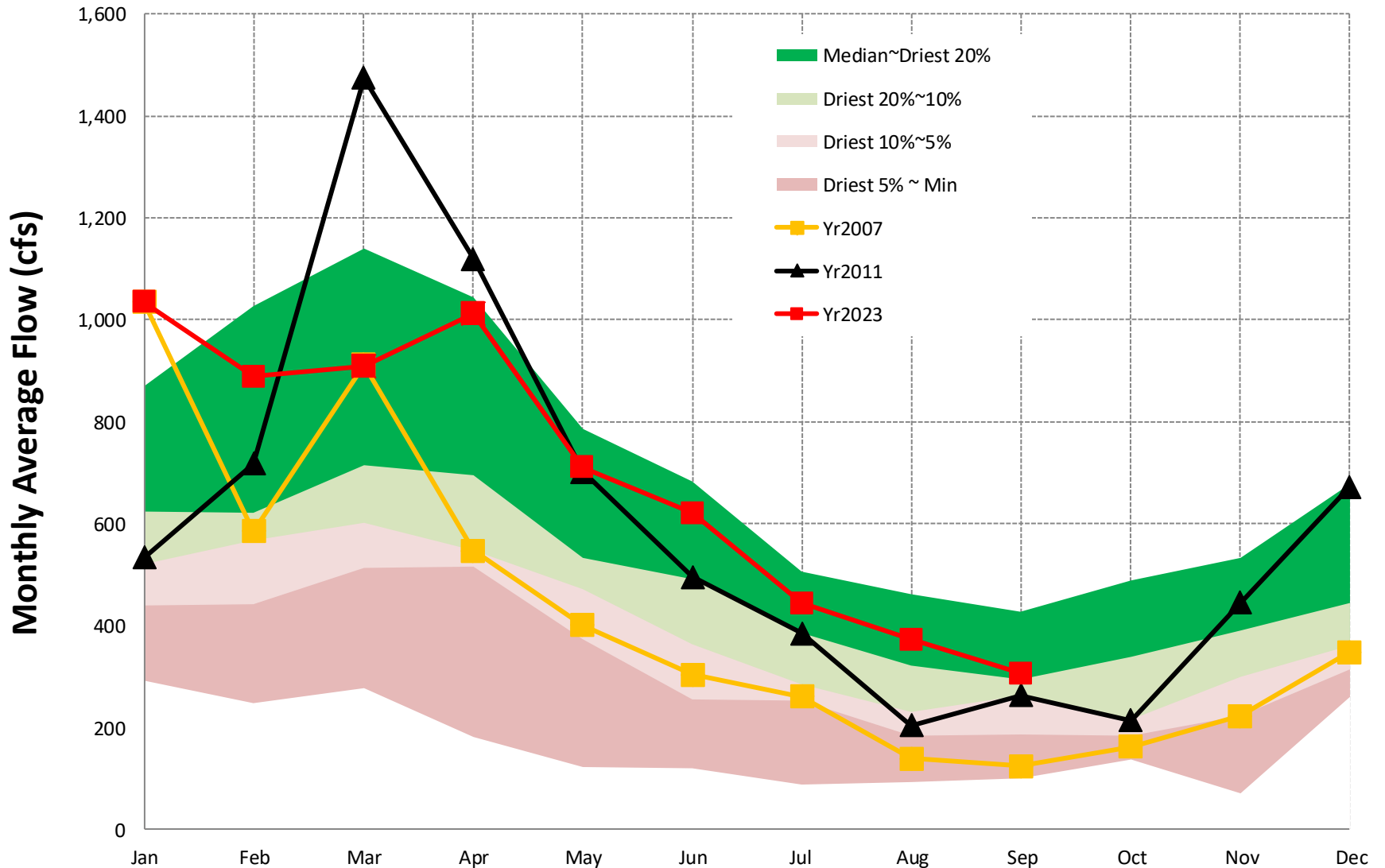
Gage #5, USGS #02392000, Coosa Basin, Etowah River at Canton, GA



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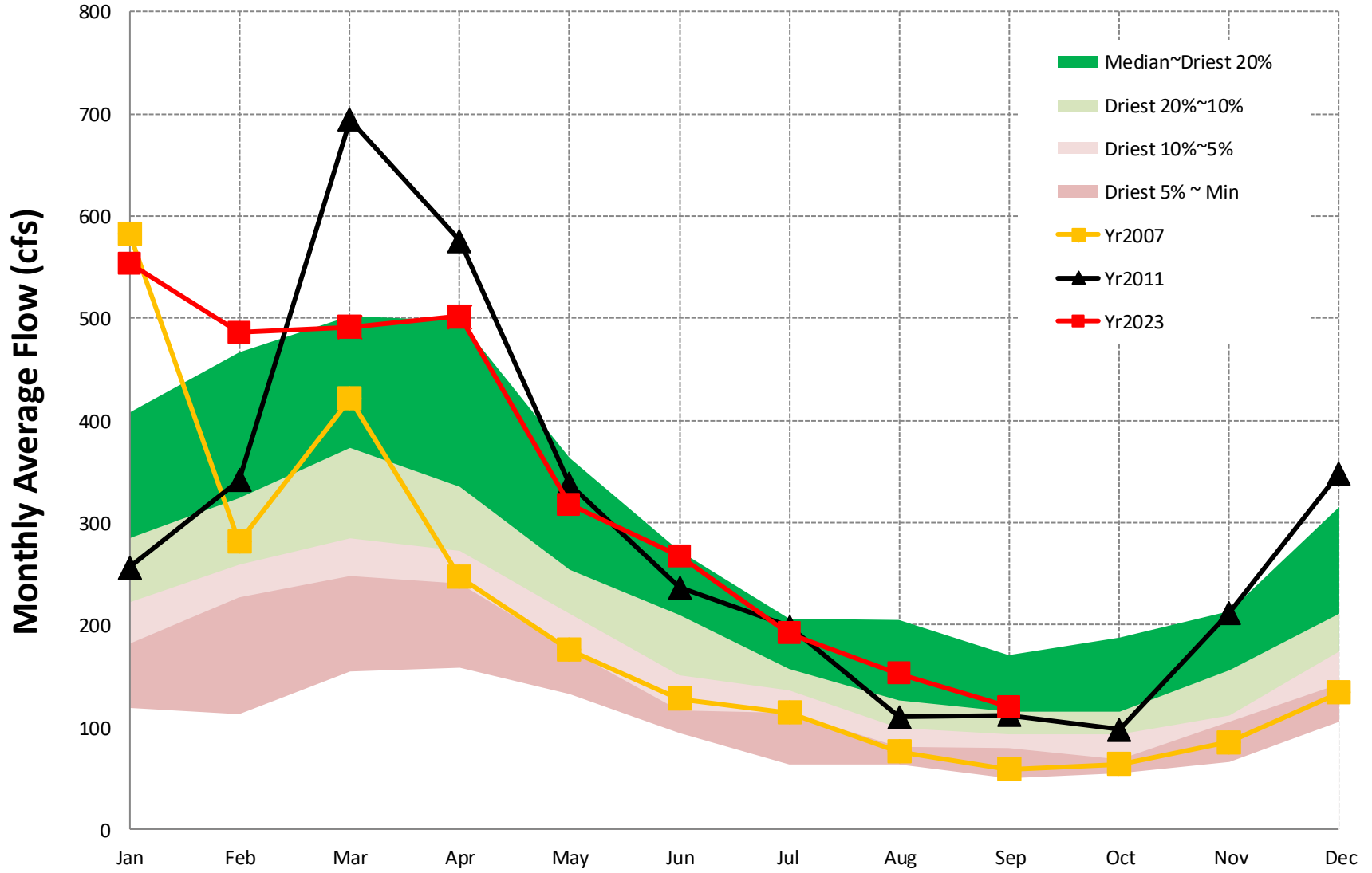
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Gage #6, USGS #02331600, Chatthoochee Basin, CHATTAHOOCHEE RIVER AT CORNELIA, GA



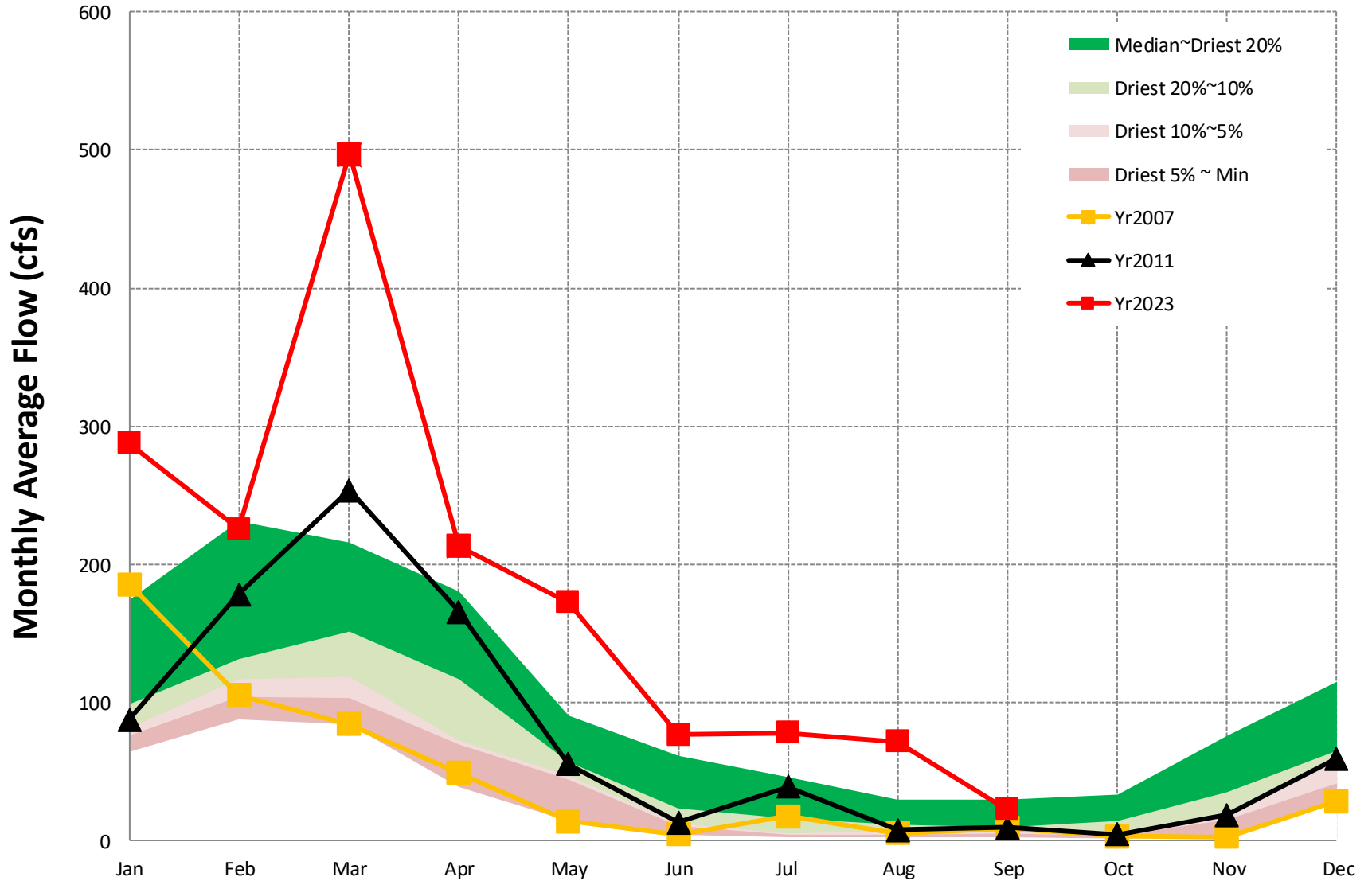
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Gage #7, USGS #02333500, Chatahoochee Basin, CHESTATEE RIVER NEAR DAHLONEGA, GA



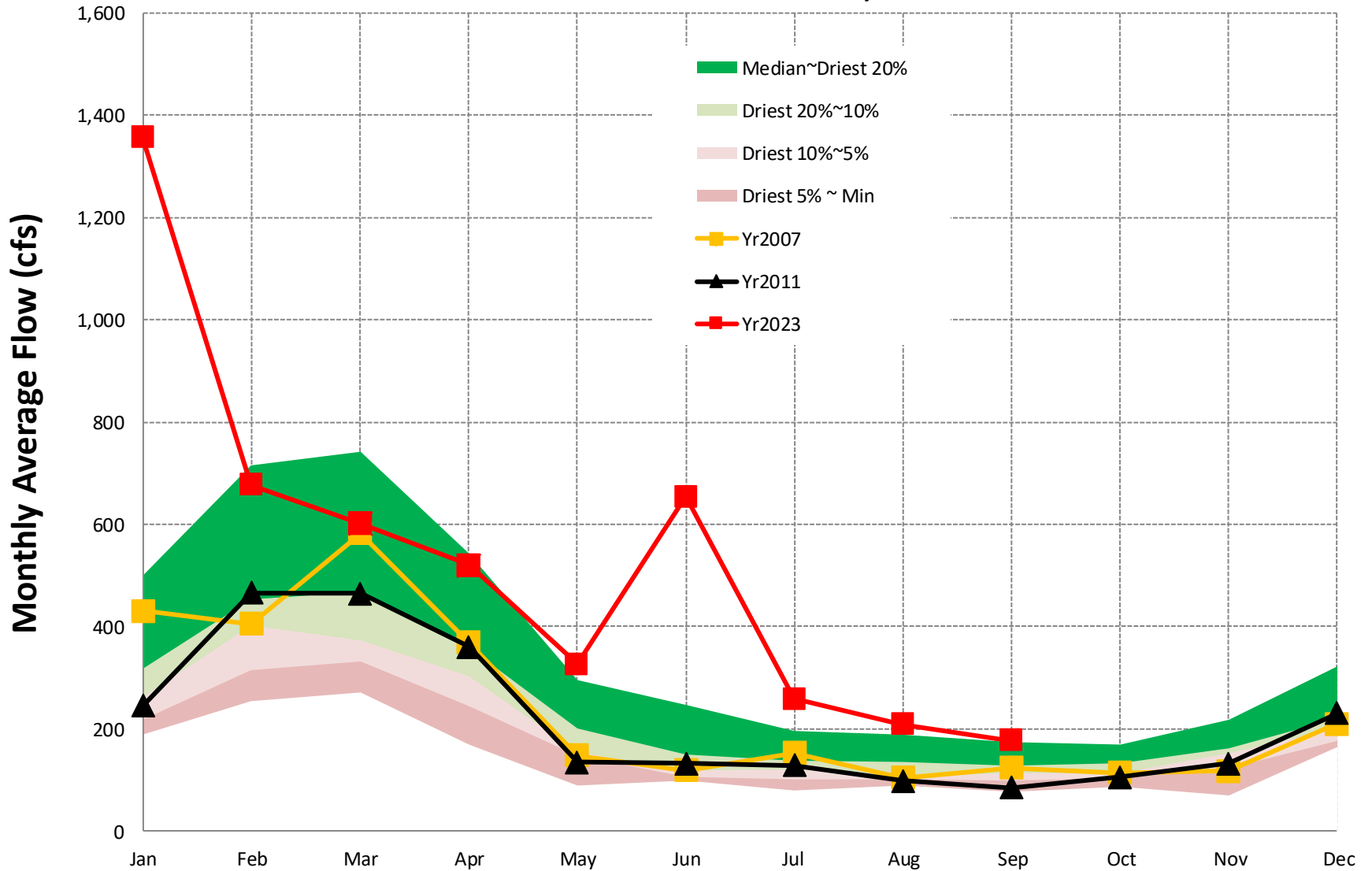
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Gage #8, USGS #02338660, Chattahoochee Basin, NEW RIVER AT GA 100, NEAR CORINTH



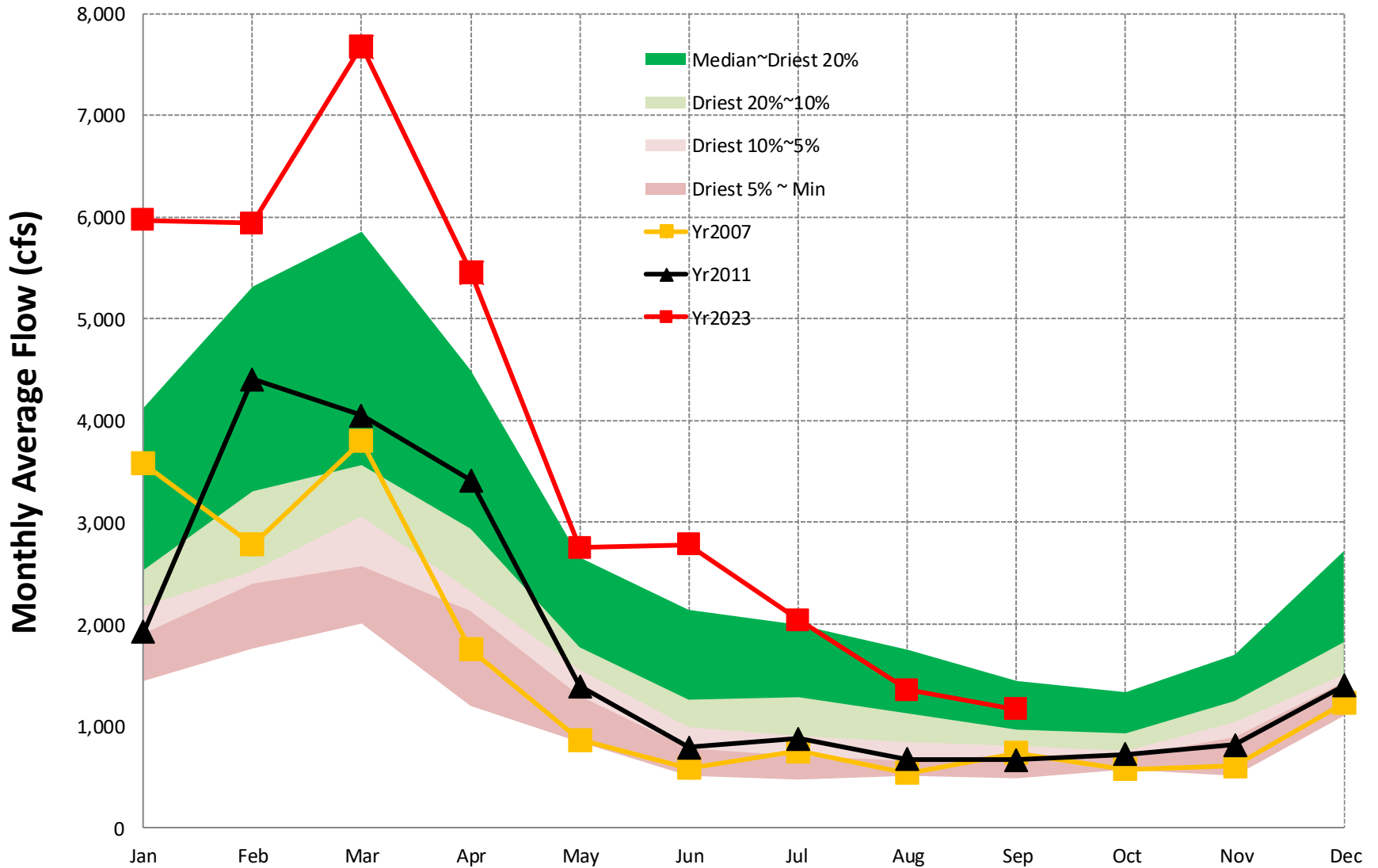
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Gage #9, USGS #02341800, Chattahoochee Basin, UPATOI CREEK NEAR COLUMBUS, GA



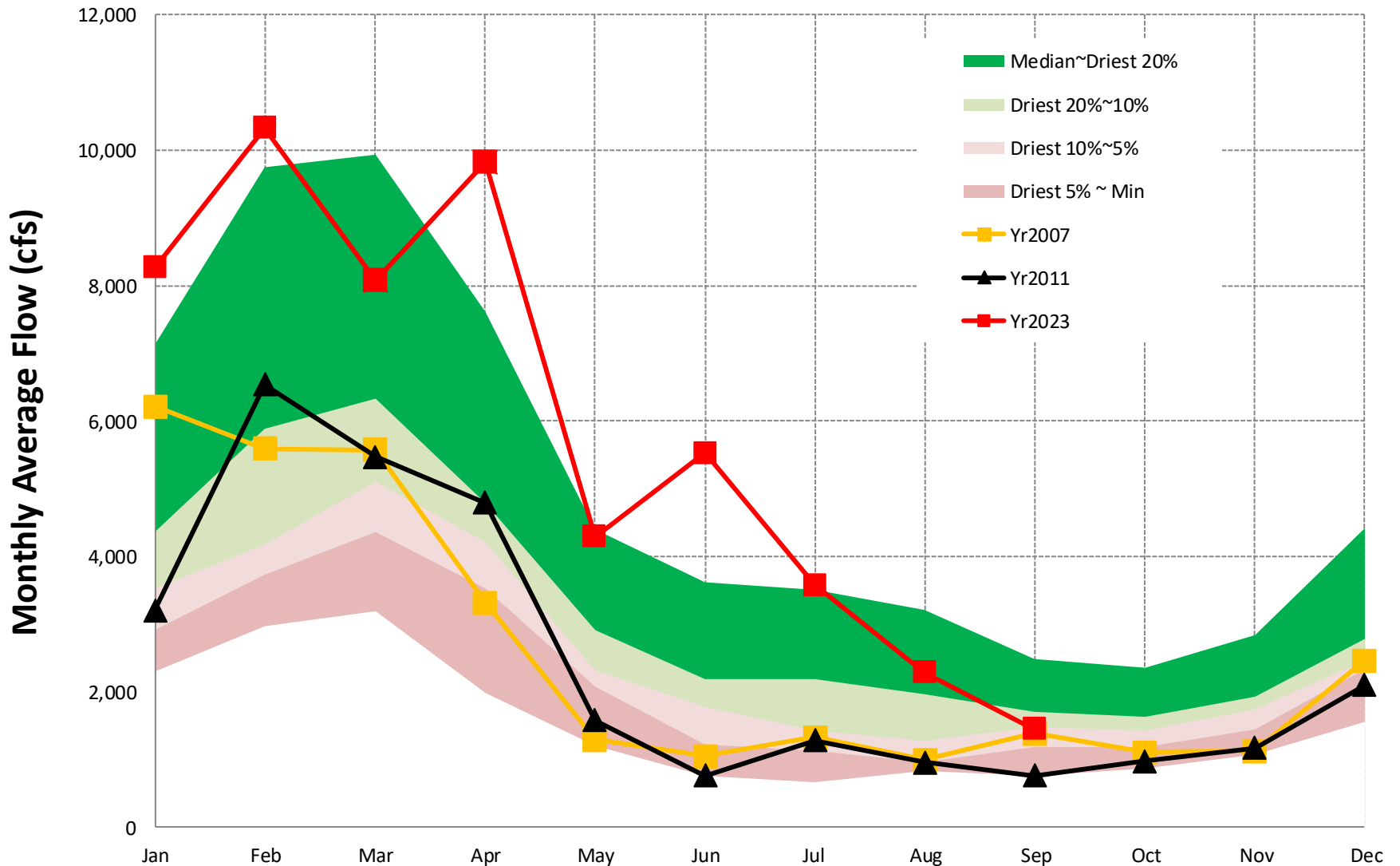
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Gage #10. USGS #02349605, Flint Basin, FLINT RIVER AT GA26 NEAR MONTEZUMA, GA



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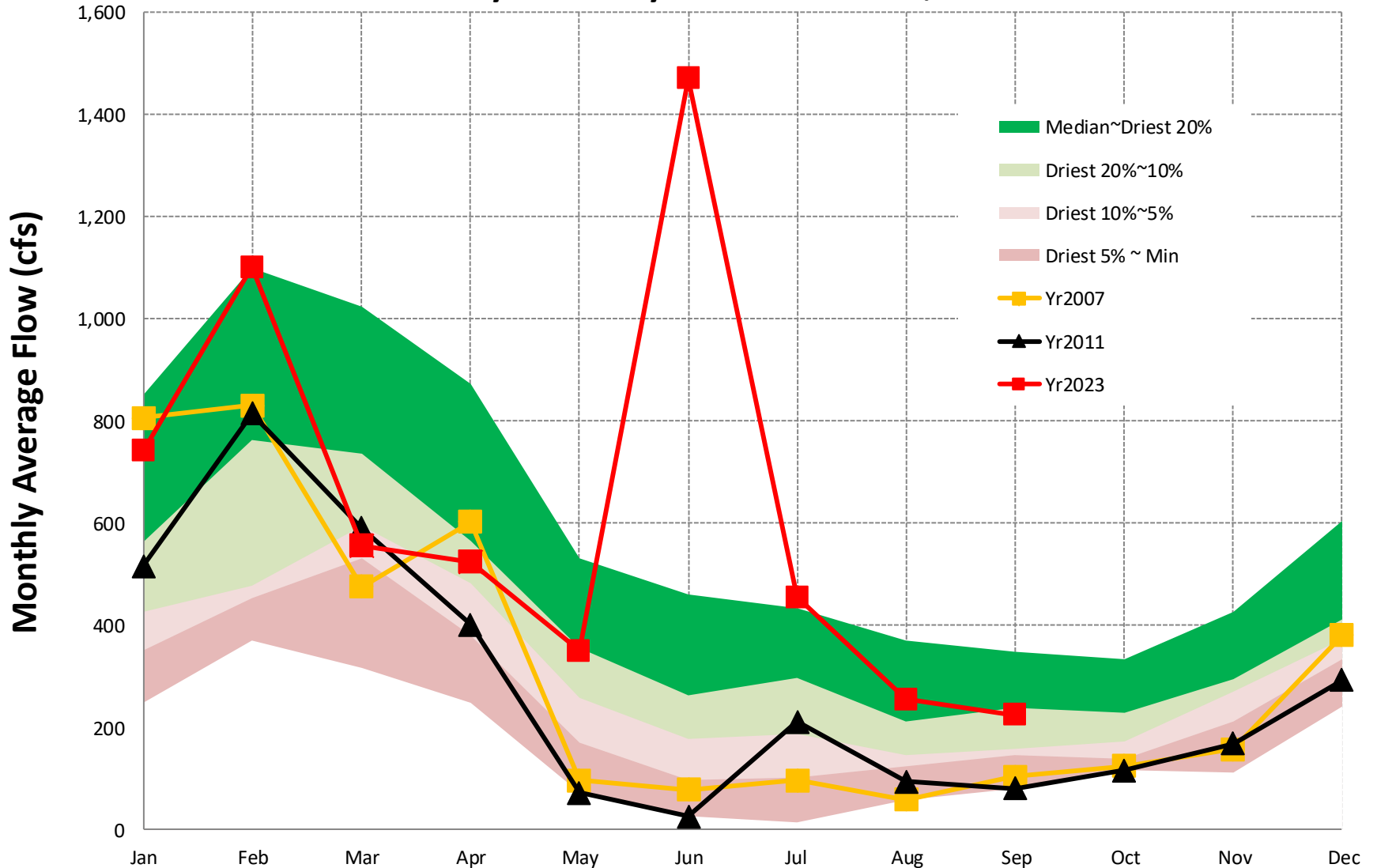
Gage #11, USGS #02352500, Flint Basin, FLINT RIVER AT ALBANY, GA



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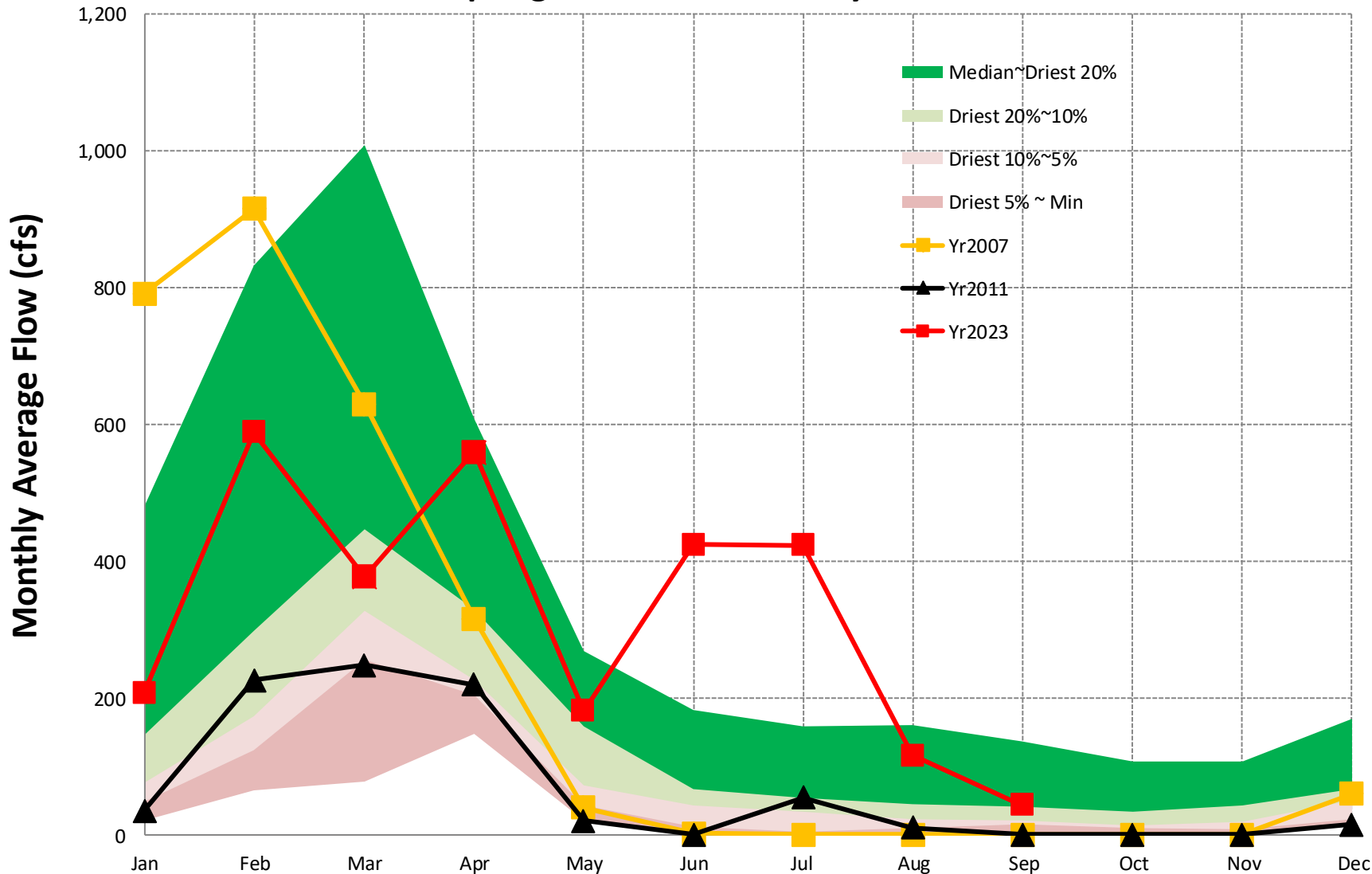
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Gage #12. USGS #02353500, Flint Basin, Ichawaynochaway Creek at Milford, GA



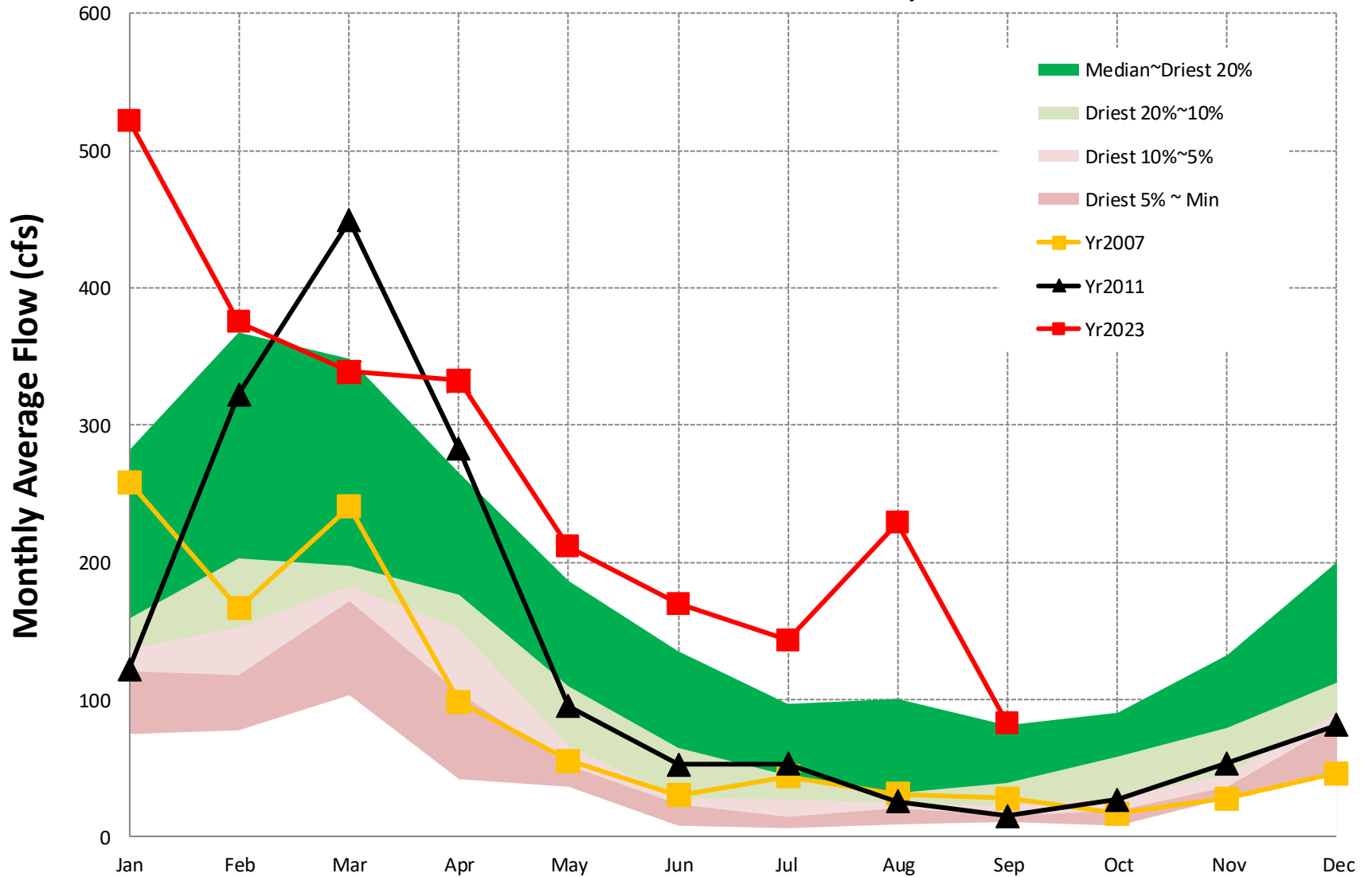
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Gage #13. USGS #02357000, Flint River, Spring Creek near Iron City, GA



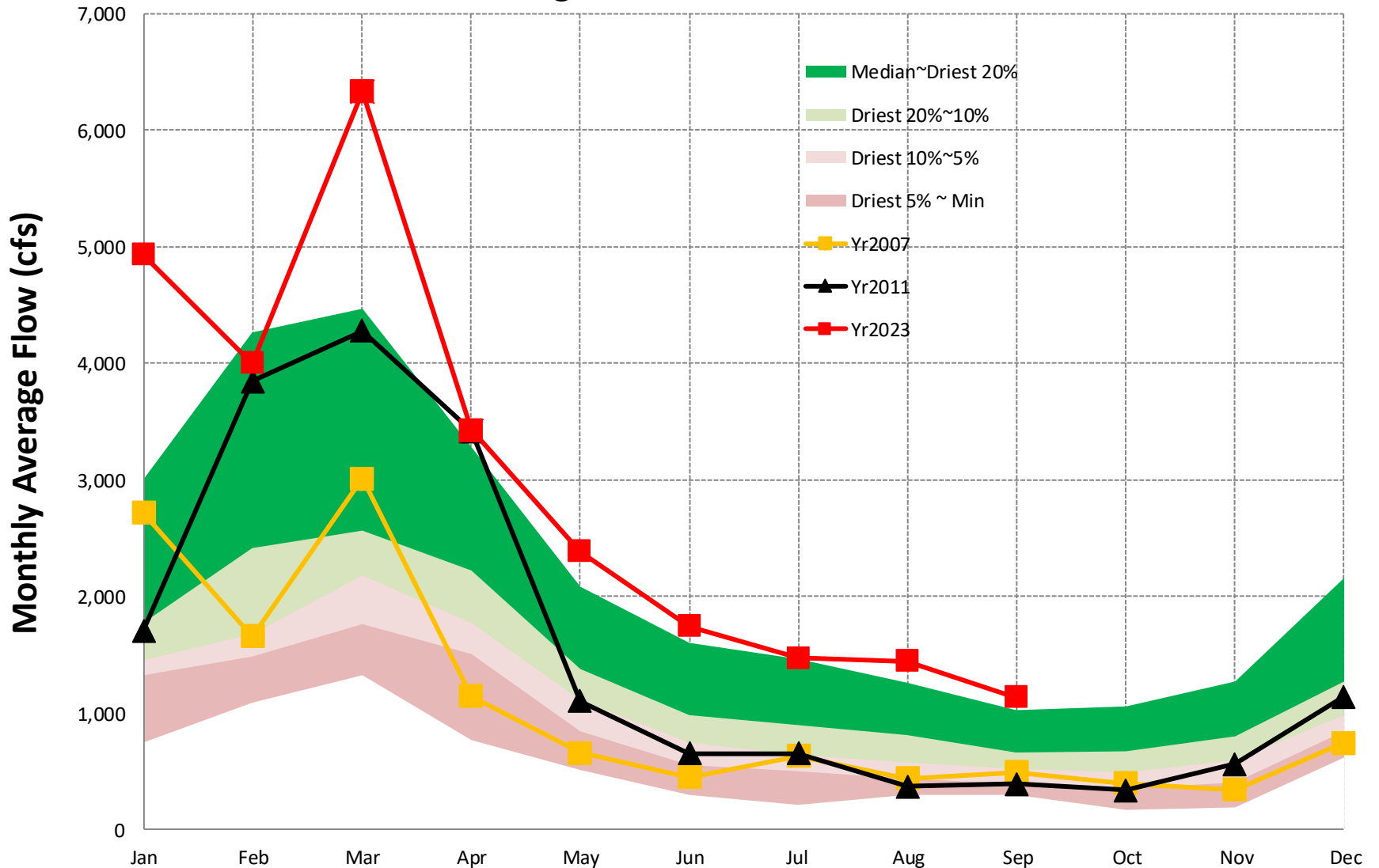
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Gage #14. USGS #02208450, Ocumulgee Basin, ALCOVY RIVER above COVINGTON, GA



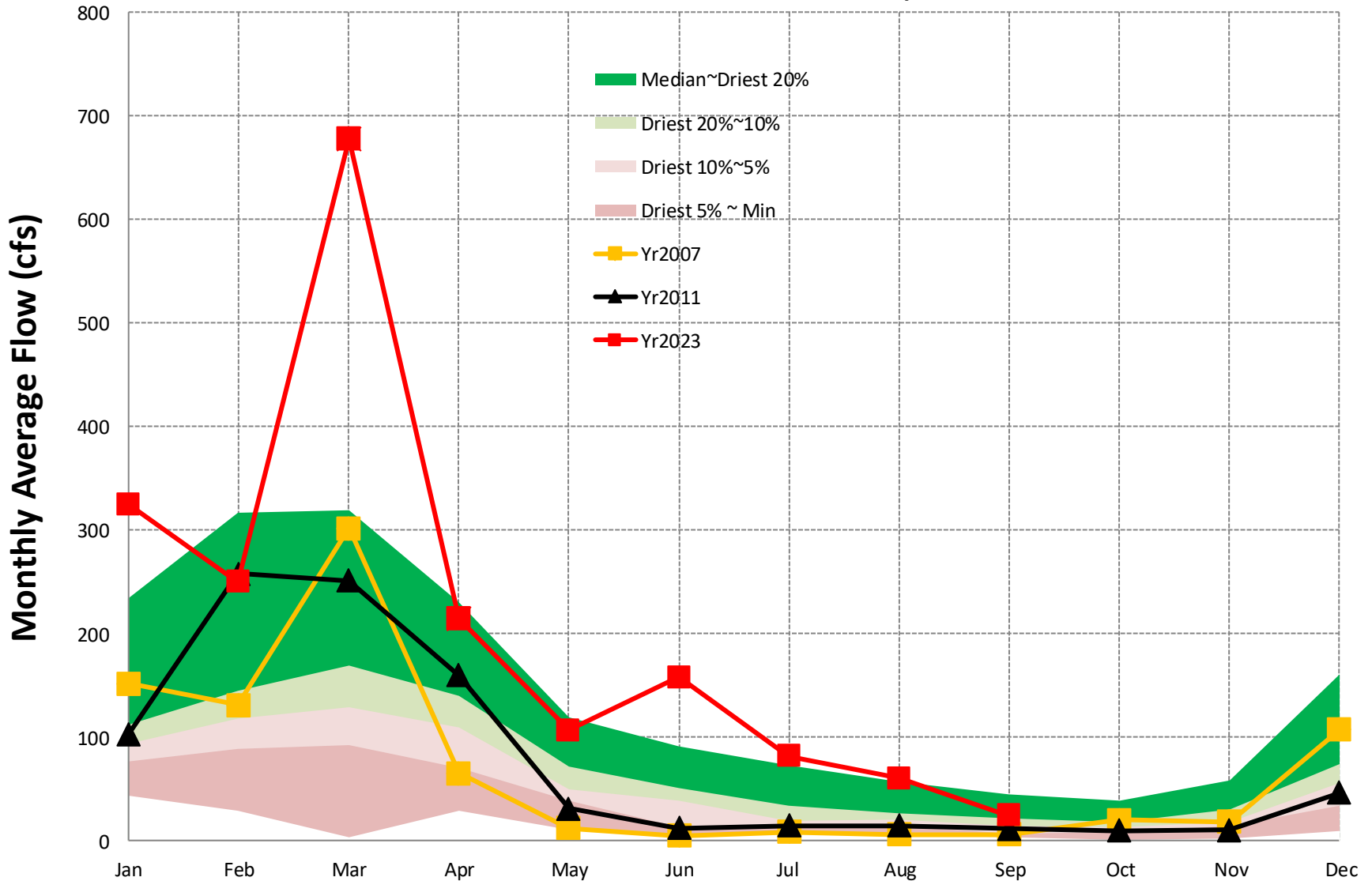
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Gage #15. USGS #02213000, Ocmulgee Basin, Ocmulgee River at Macon, GA



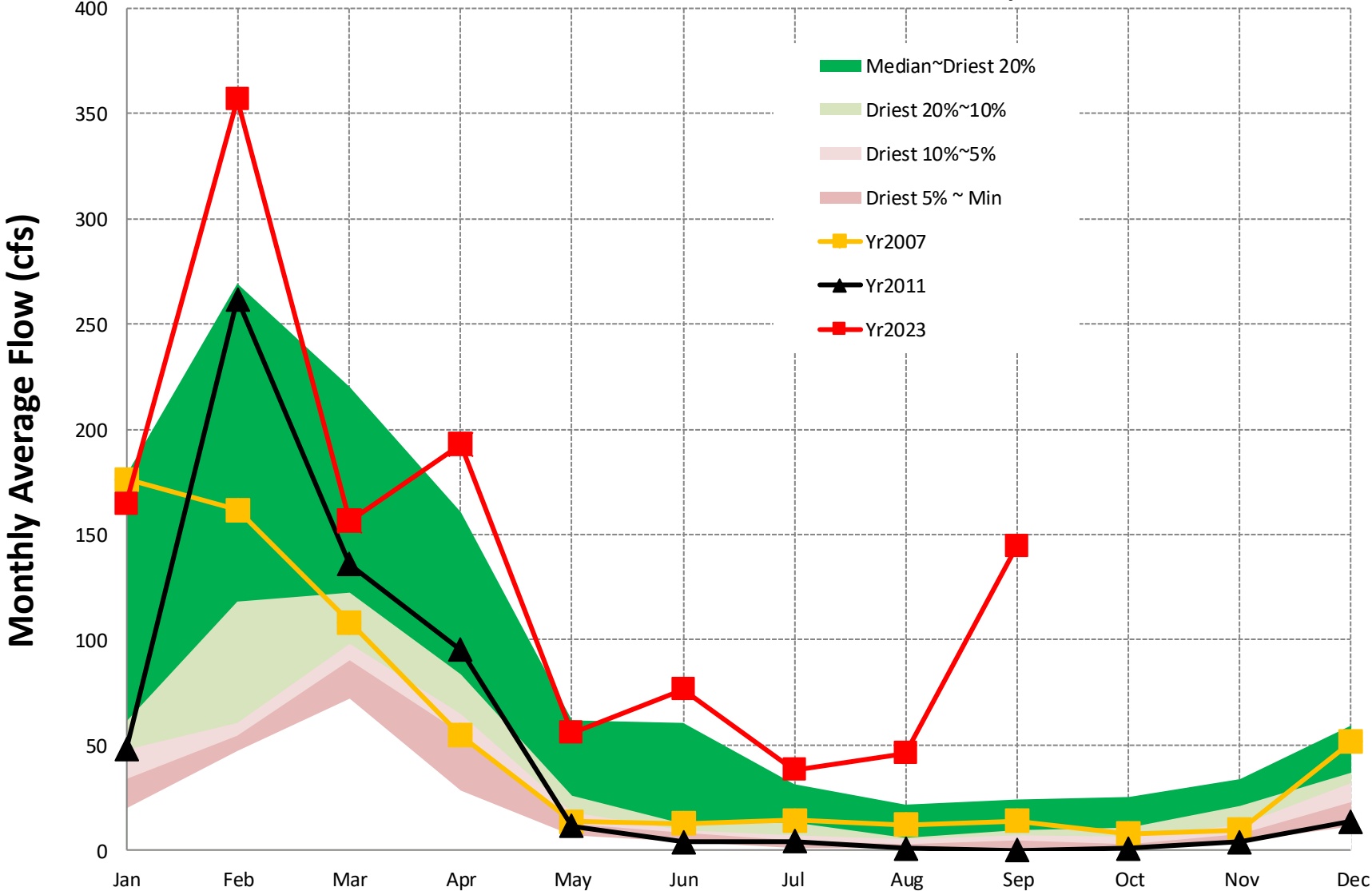
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Gage #16. USGS #02213500, Ocmulgee Basin, TOBESOFKEE CREEK near MACON, GA



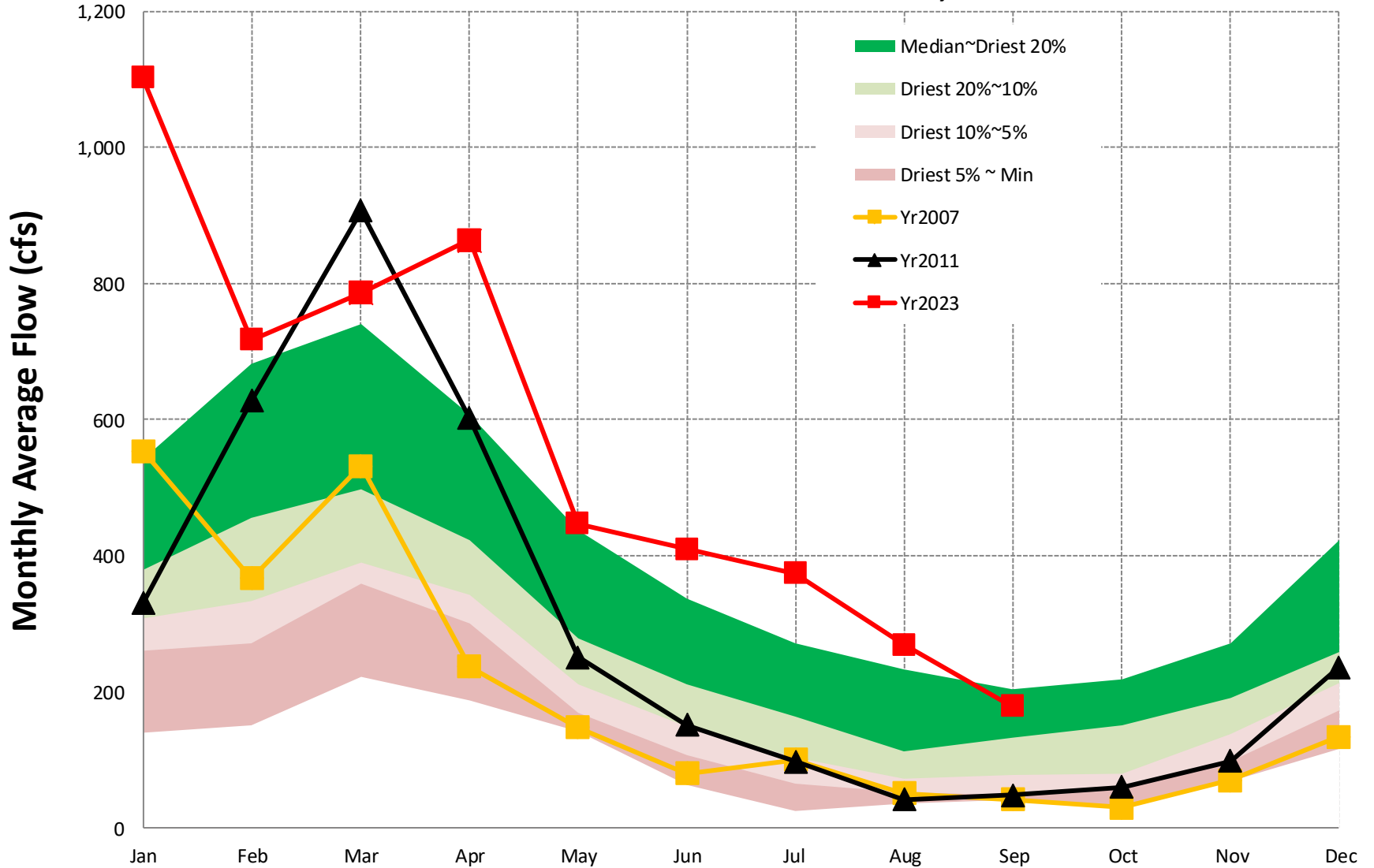
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Gage #17. USGS #02215100, Ocmulgee Basin, TUCSAWHATCHEE CREEK near HAWKINSVILLE, GA



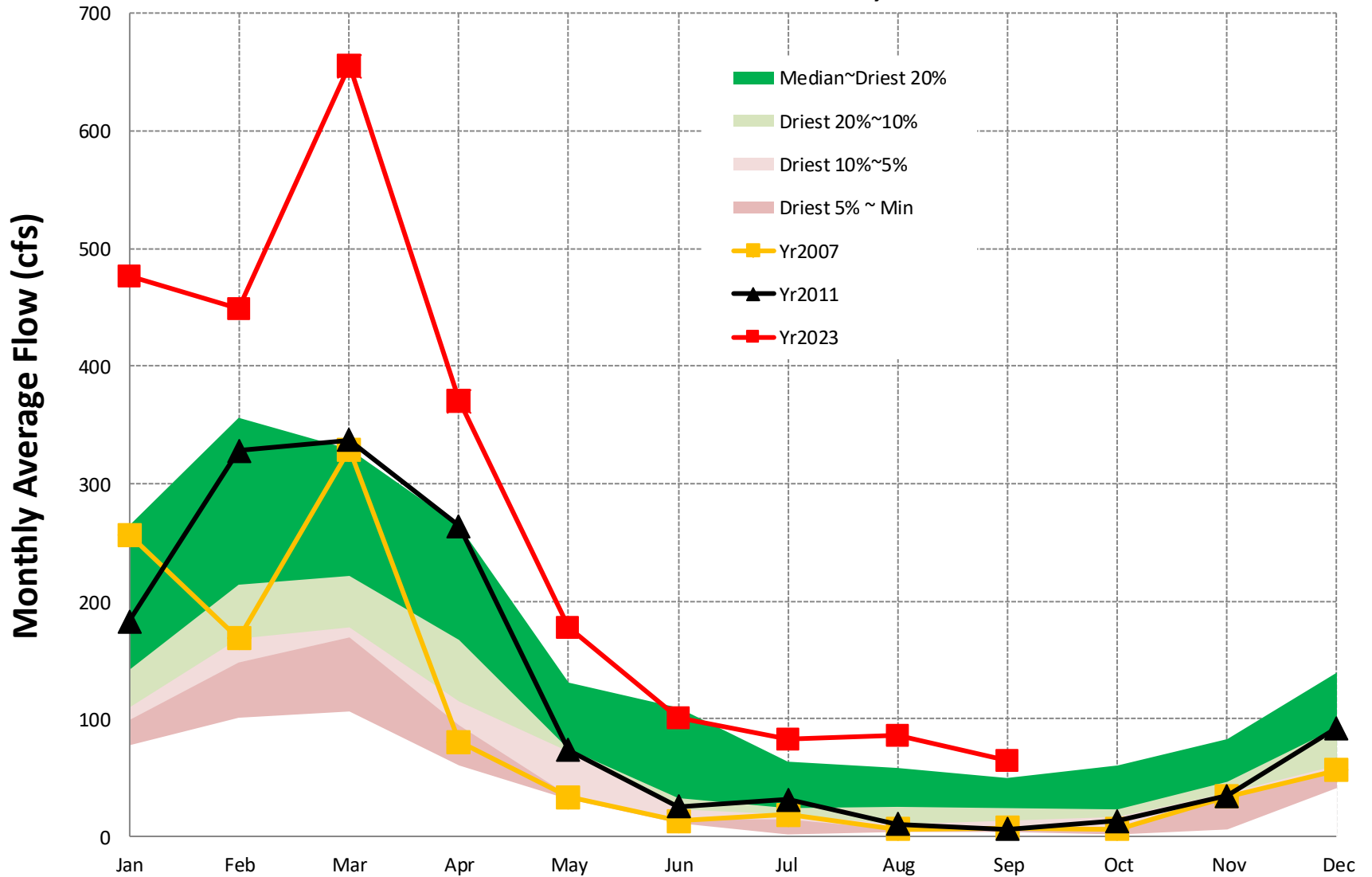
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Gage #18. USGS #02217500, Oconee Basin, MIDDLE OCONEE RIVER near ATHENS, GA



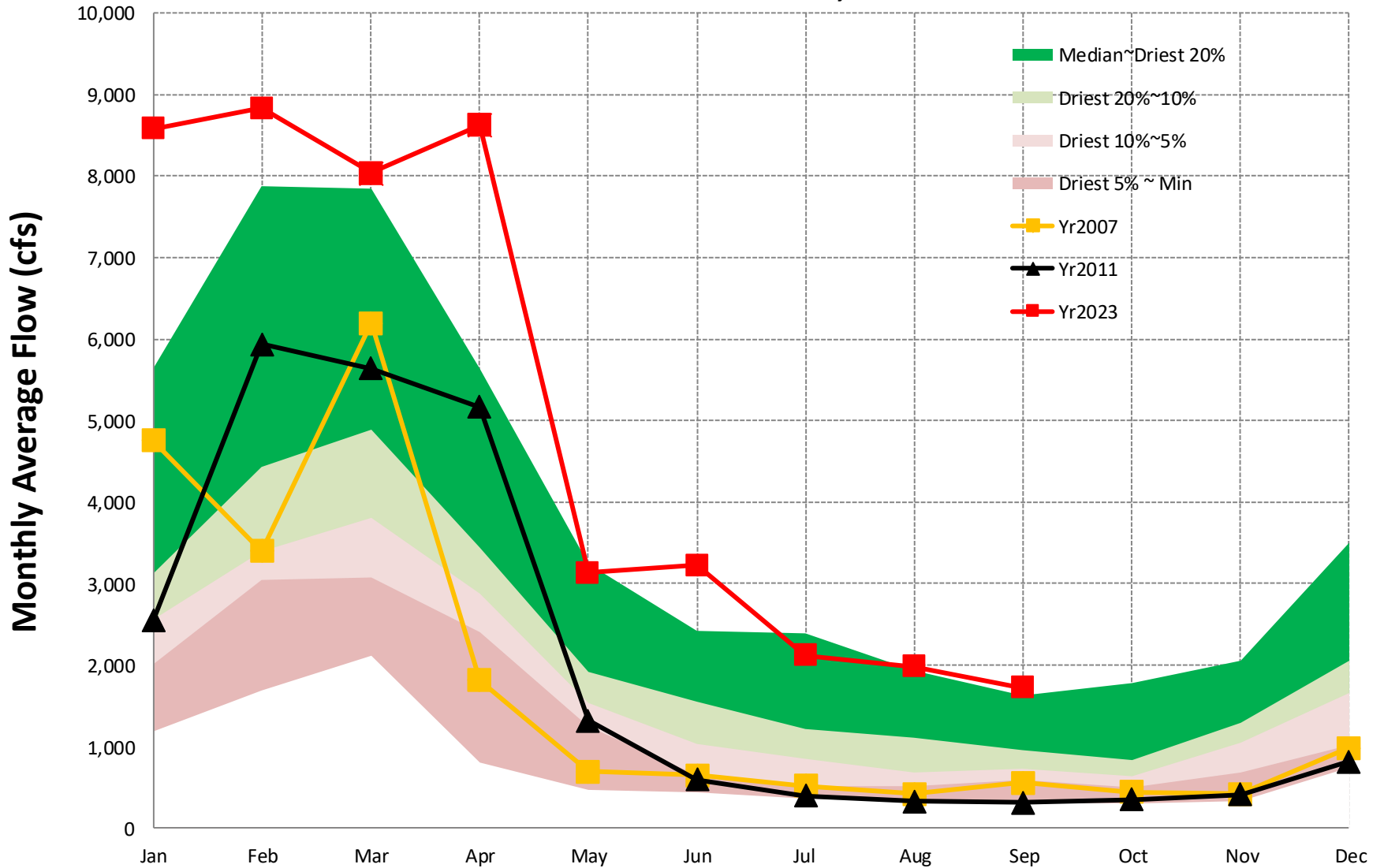
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Gage #19. USGS #02220900, Oconee Basin, LITTLE RIVER near EATONTON, GA



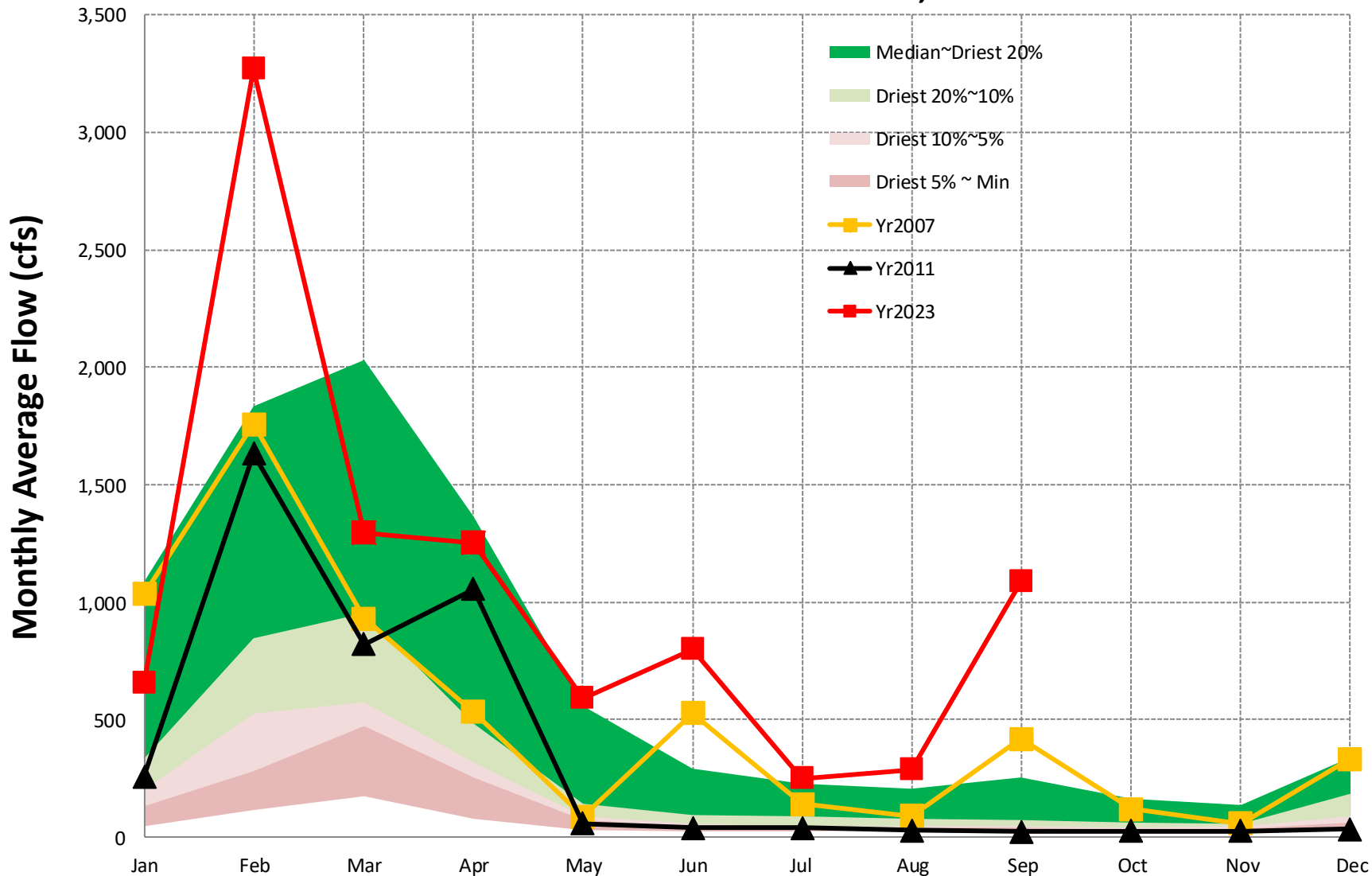
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Gage #20. USGS #02223500, Oconee Basin, Oconee River at Dublin, GA



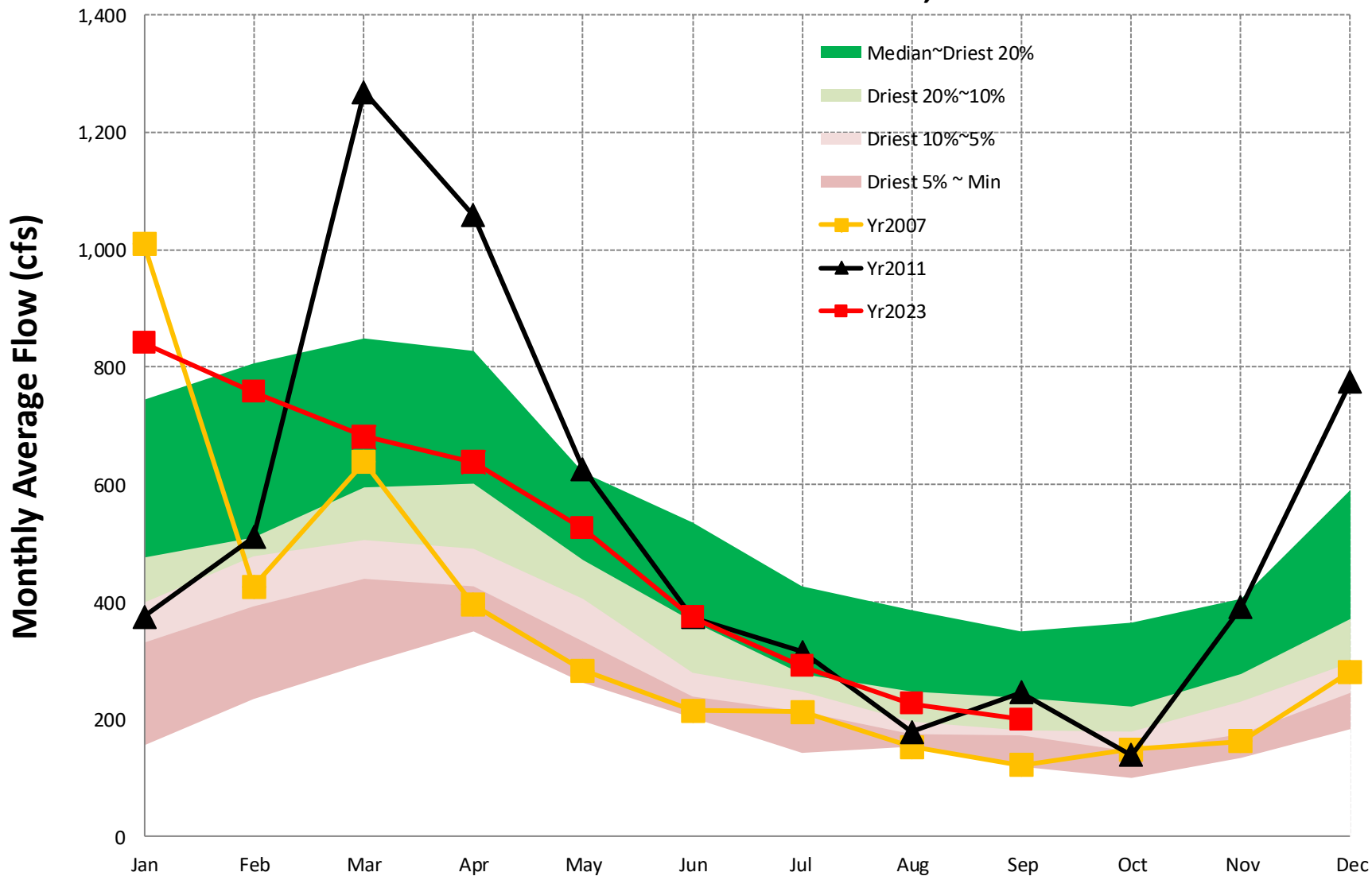
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Gage #21. USGS #02225500, Altamaha Basin, OHOOPEE RIVER near REIDSVILLE, GA

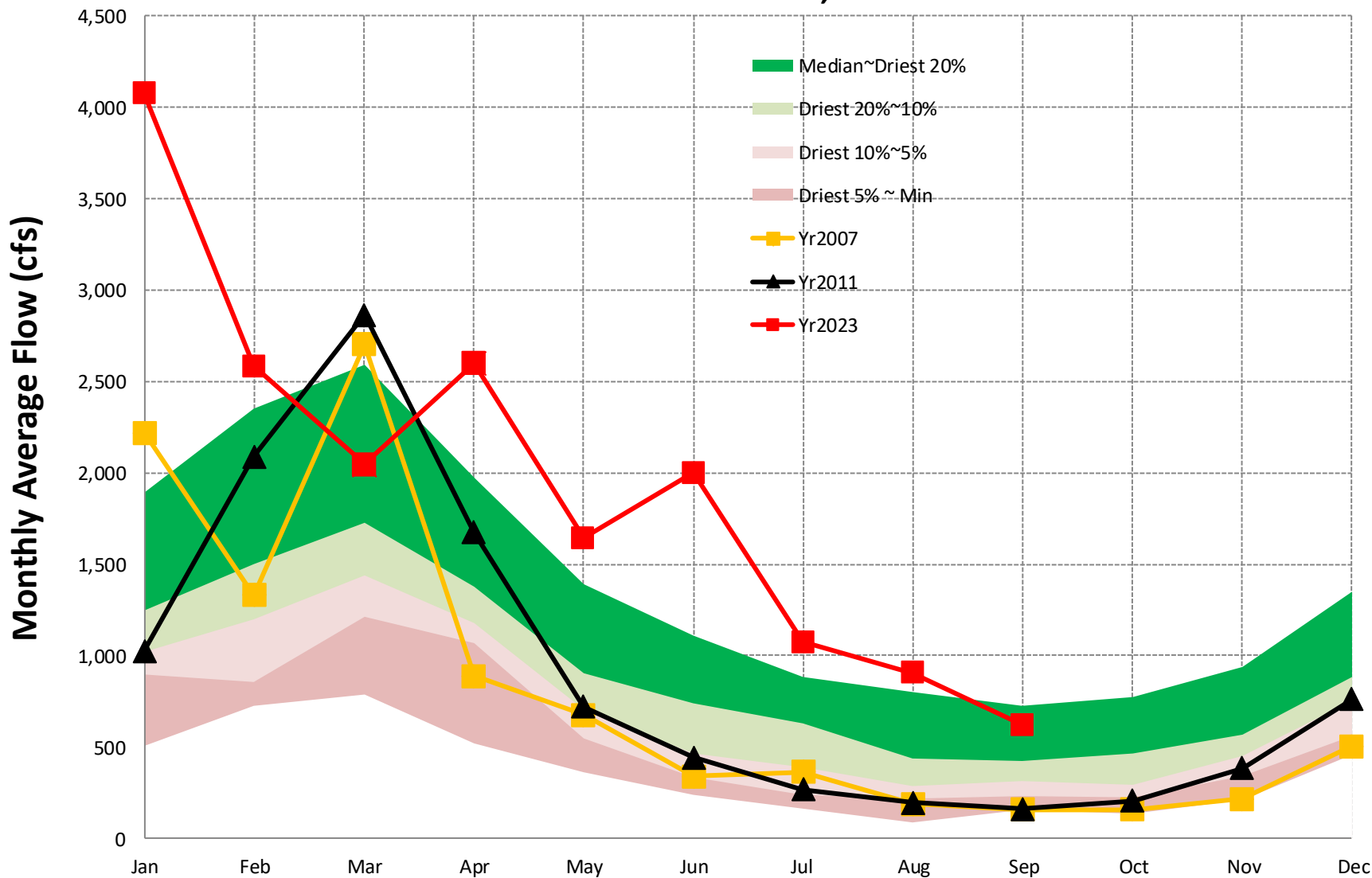


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Gage #22. USGS #02177000, Savannah Basin, CHATTOOGA RIVER near CLAYTON, GA

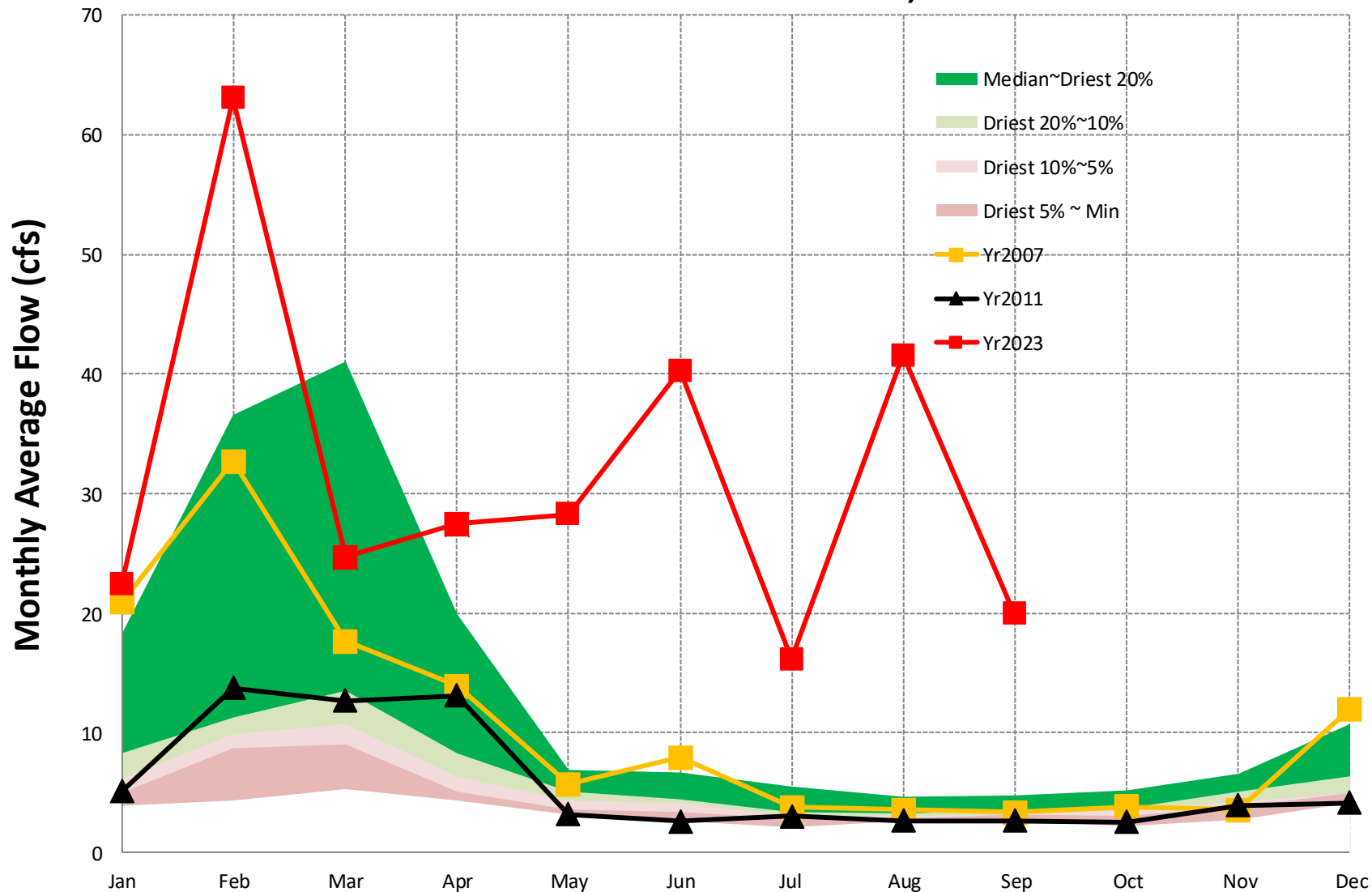


Gage #23. USGS #02192000, Savannah Basin Broad River near Bell, GA



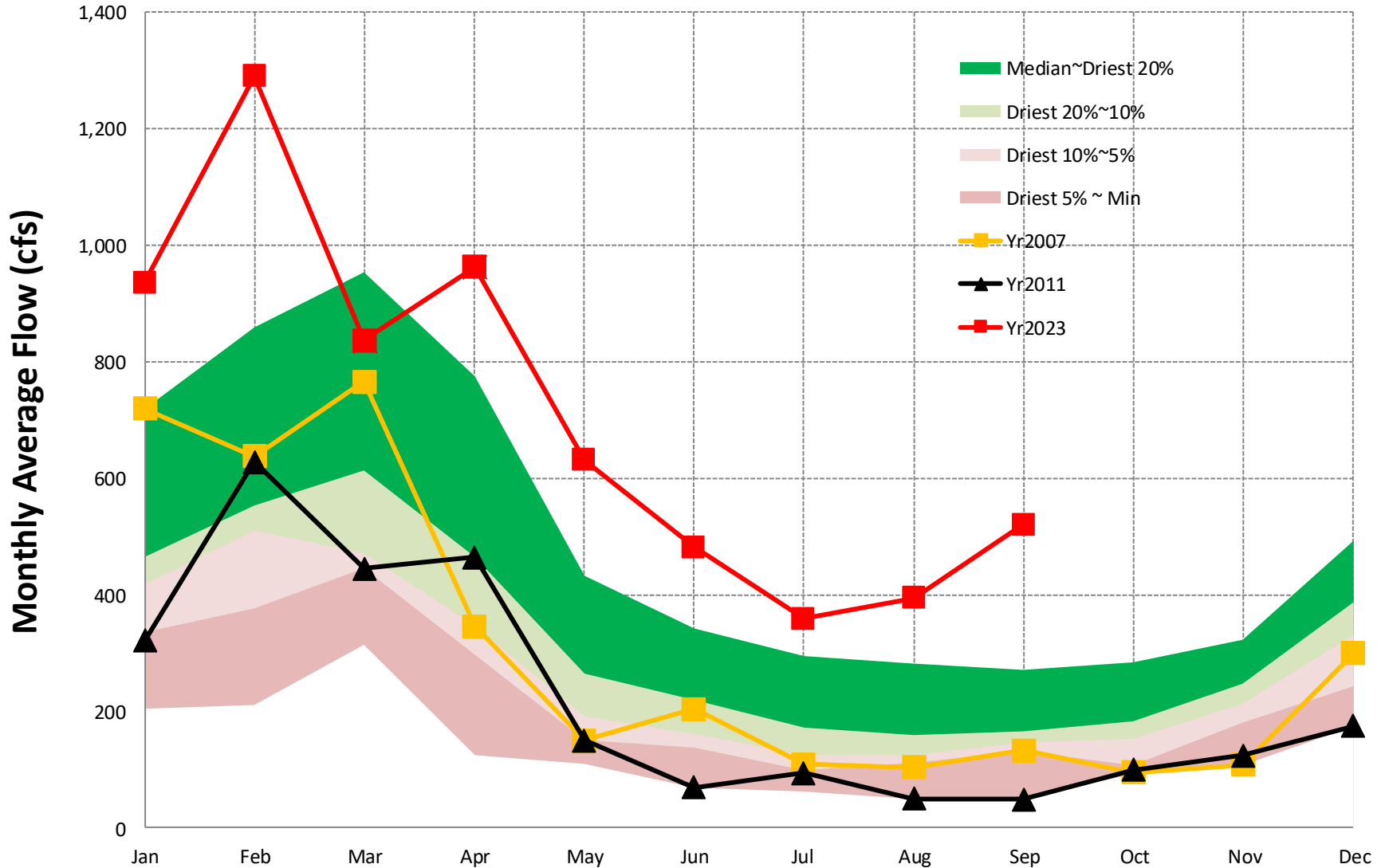
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Gage #24. USGS #02198100, Savannah Basin, BEAVERDAM CREEK near SARDIS, GA



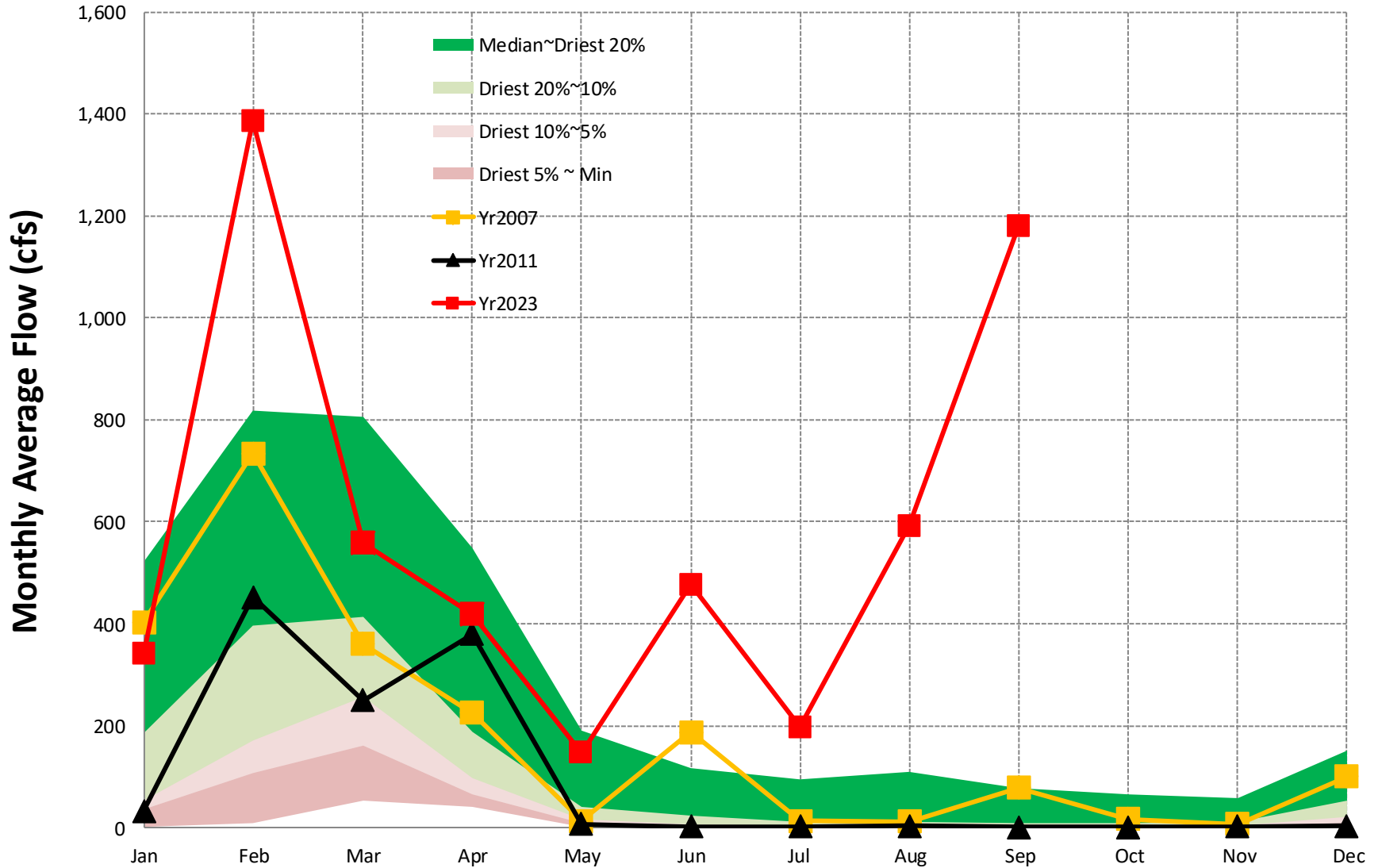
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Gage #25. USGS #02198000, Savannah Basin, BRIER CREEK at MILLHAVEN, GA



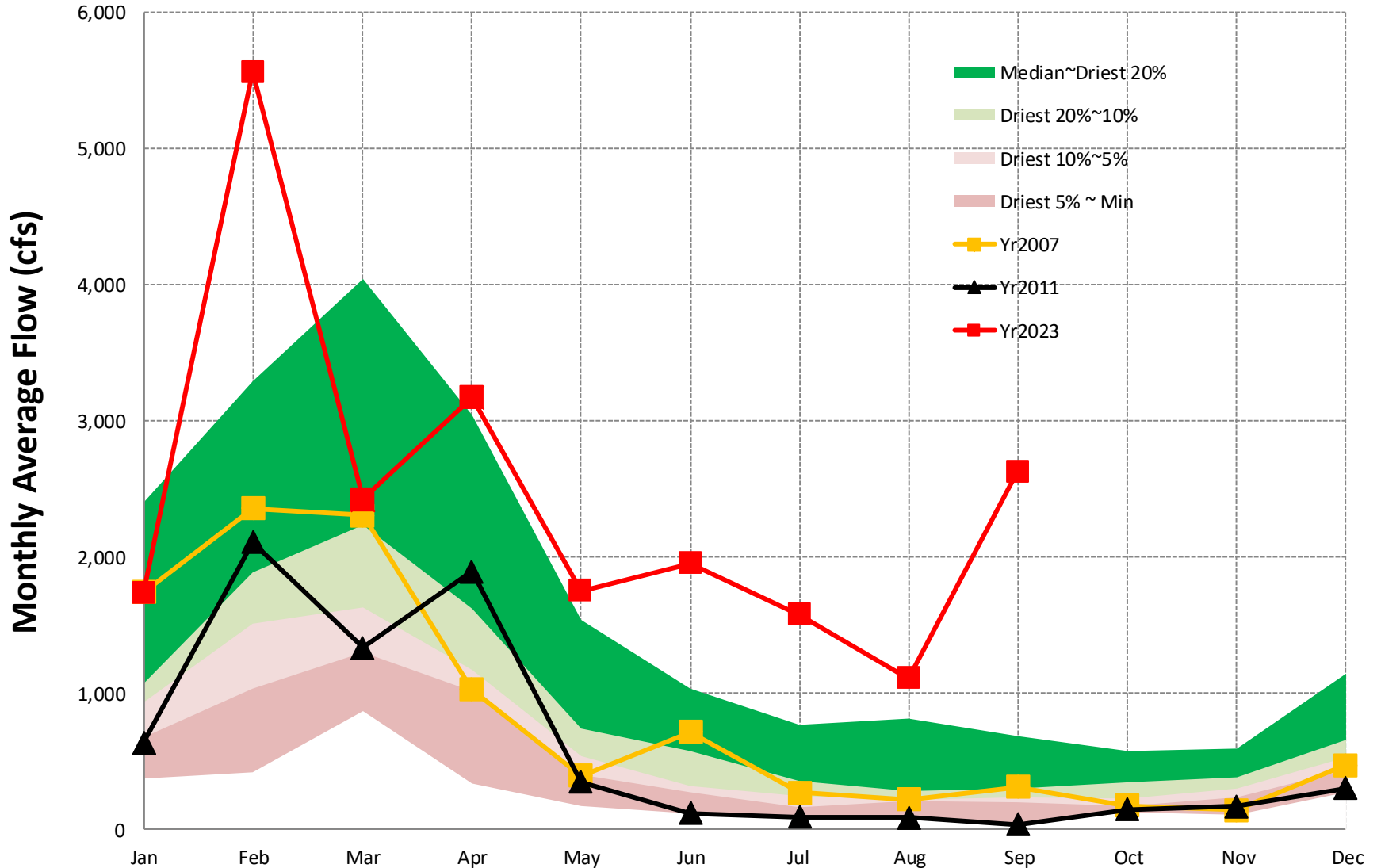
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Gage #26. USGS #02203000, Ogeechee Basin, CANOOCHEE RIVER near CLAXTON, GA



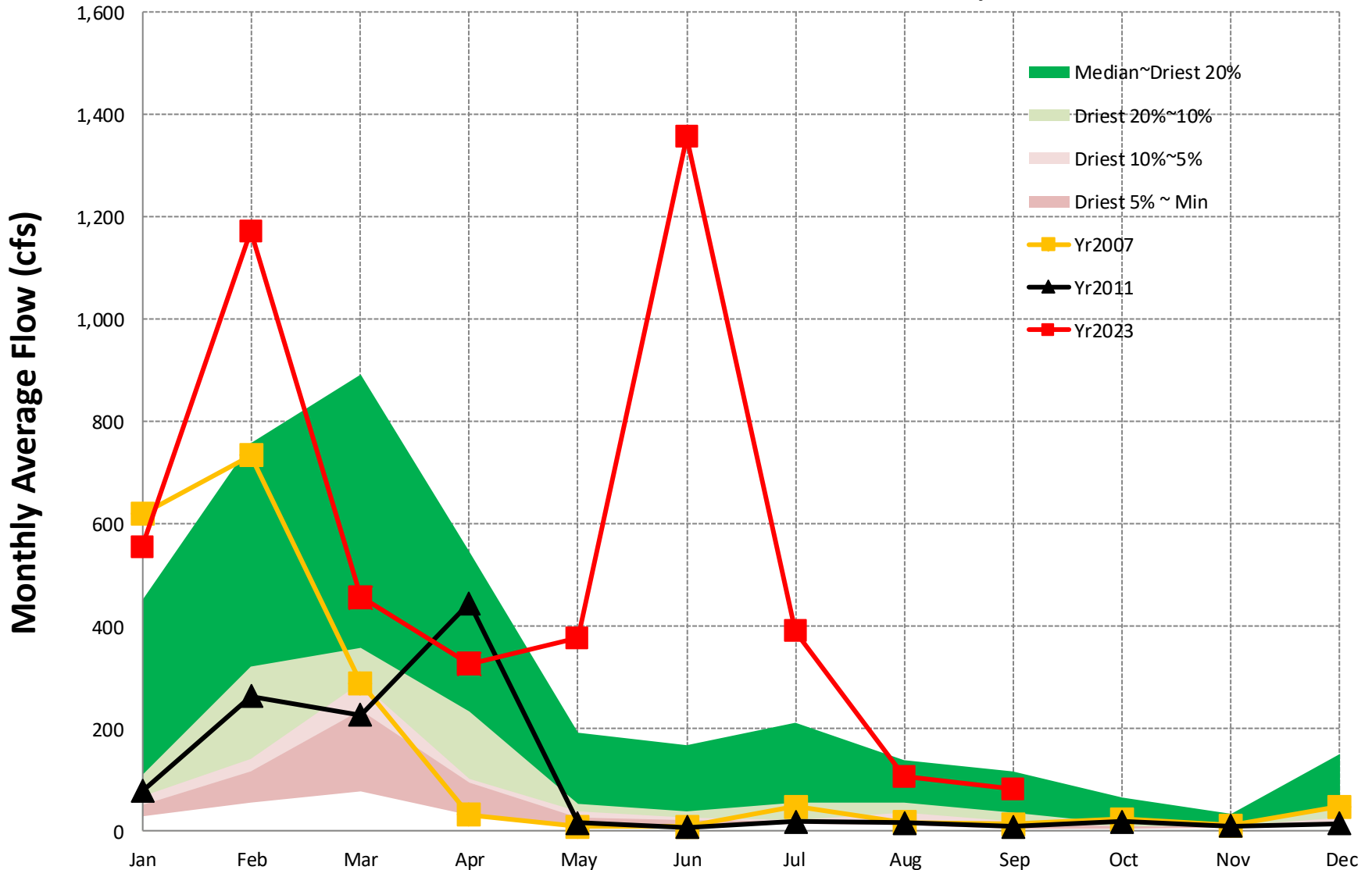
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Gage #27. USGS #02202500, Ogeechee Basin, Ogeechee River near Eden, GA

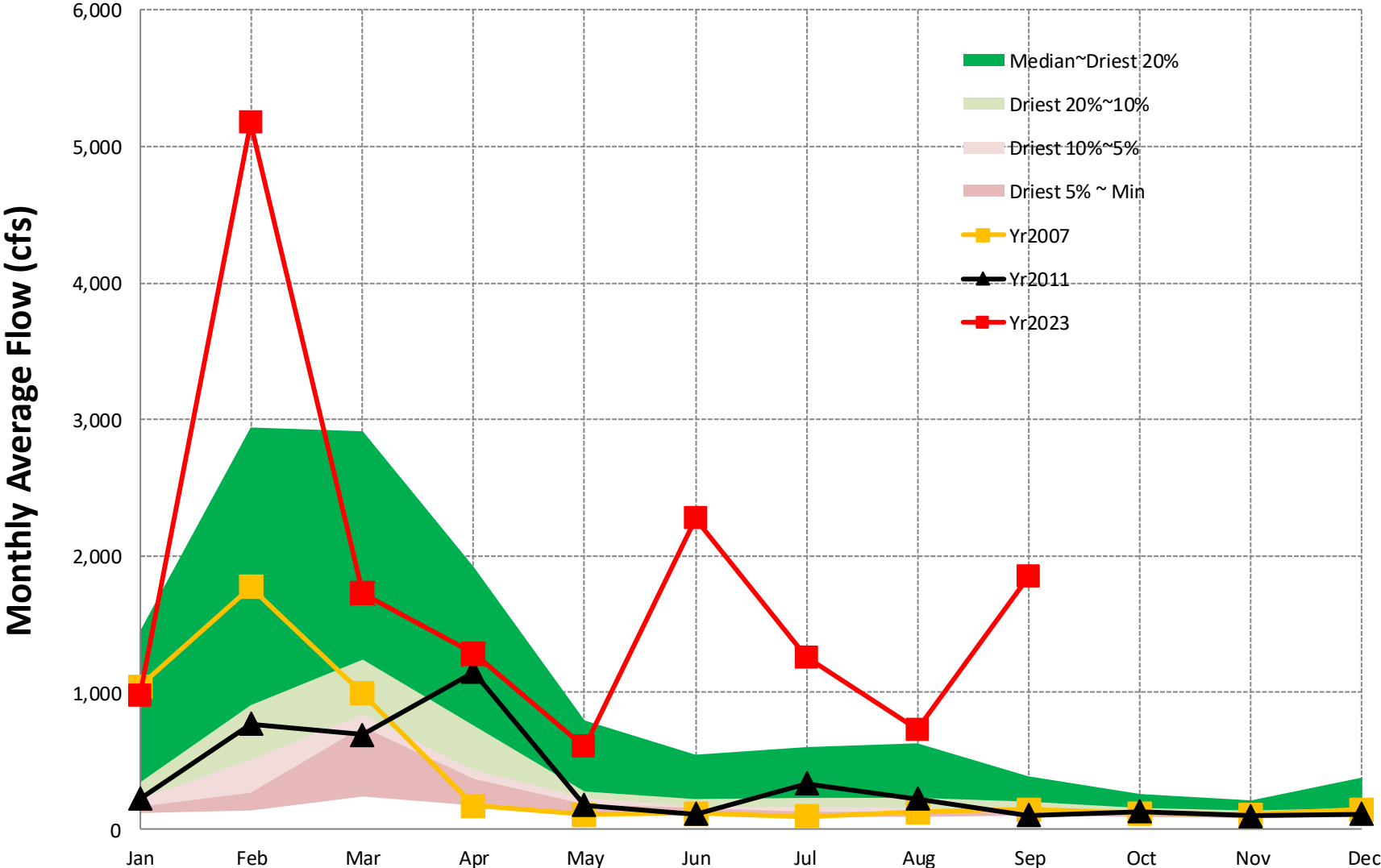


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Gage #28. USGS #02327500, Ochlockonee Basin, OCHLOCKONEE RIVER near THOMASVILLE, GA

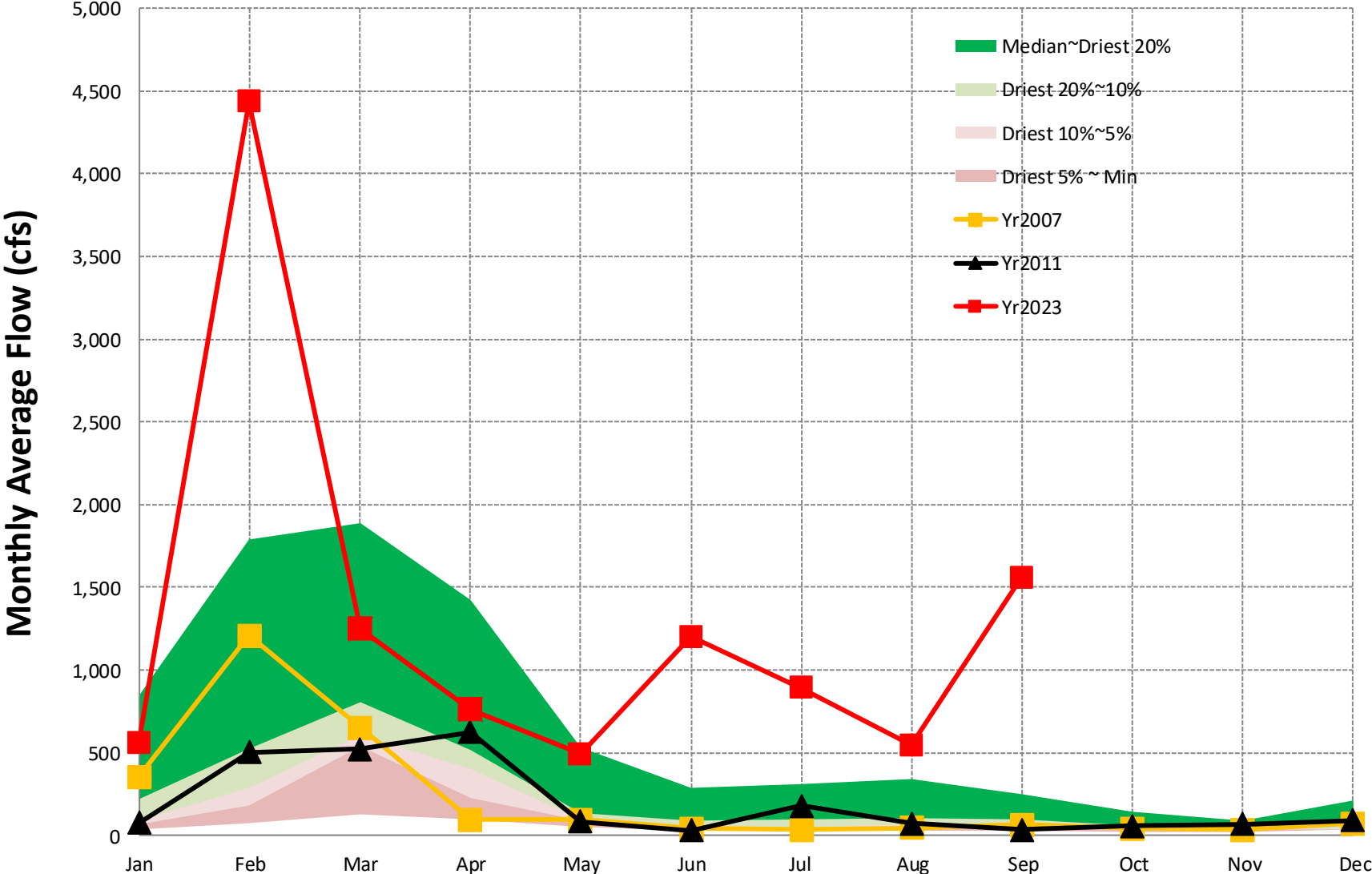


Gage #29. USGS #02319000, Suwannee Basin, WITHLACOOCHEE RIVER near PINETTA, FL



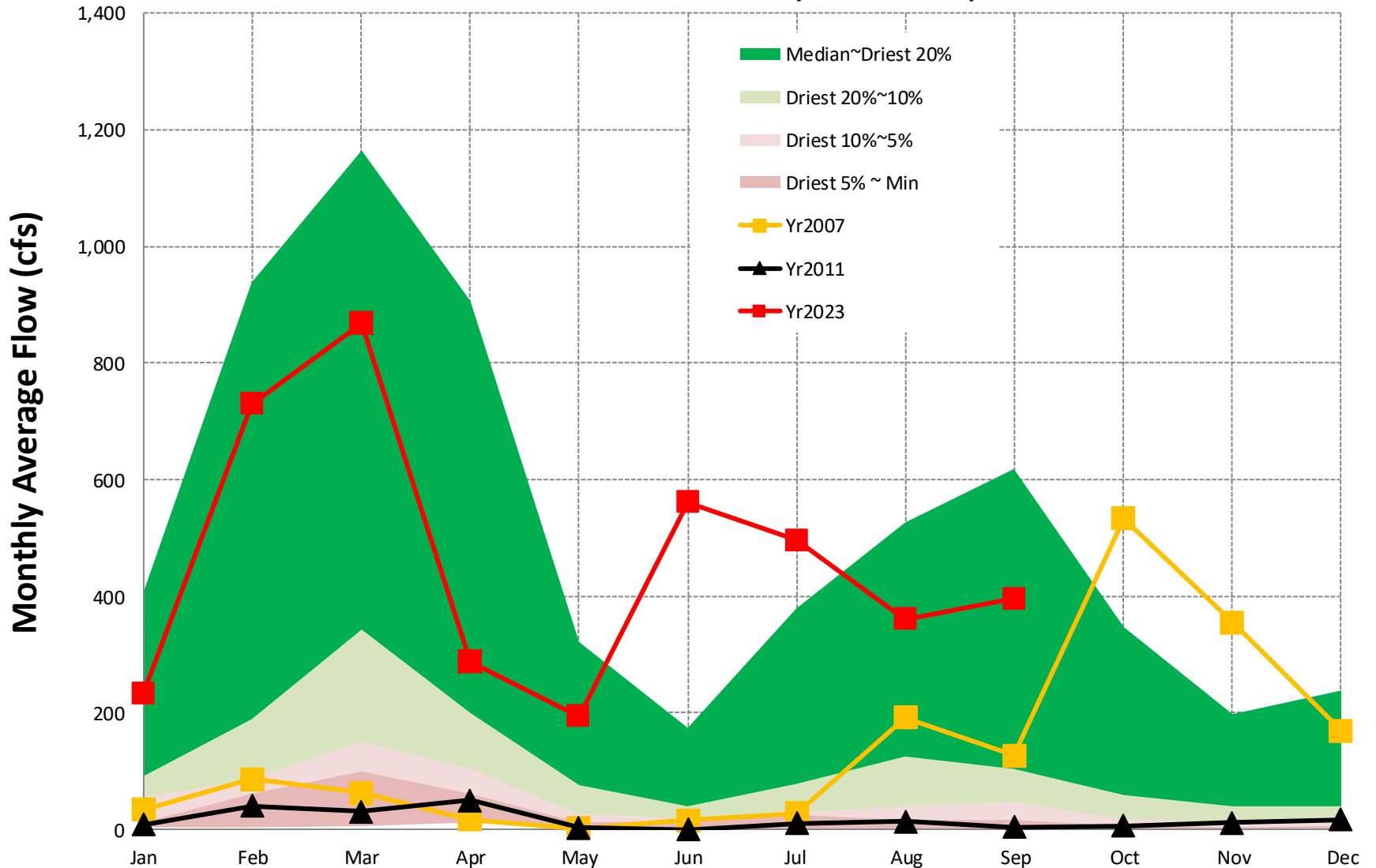
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Gage #30. USGS #02317500, Suwanee Basin, Alapaha River at Statenville, GA



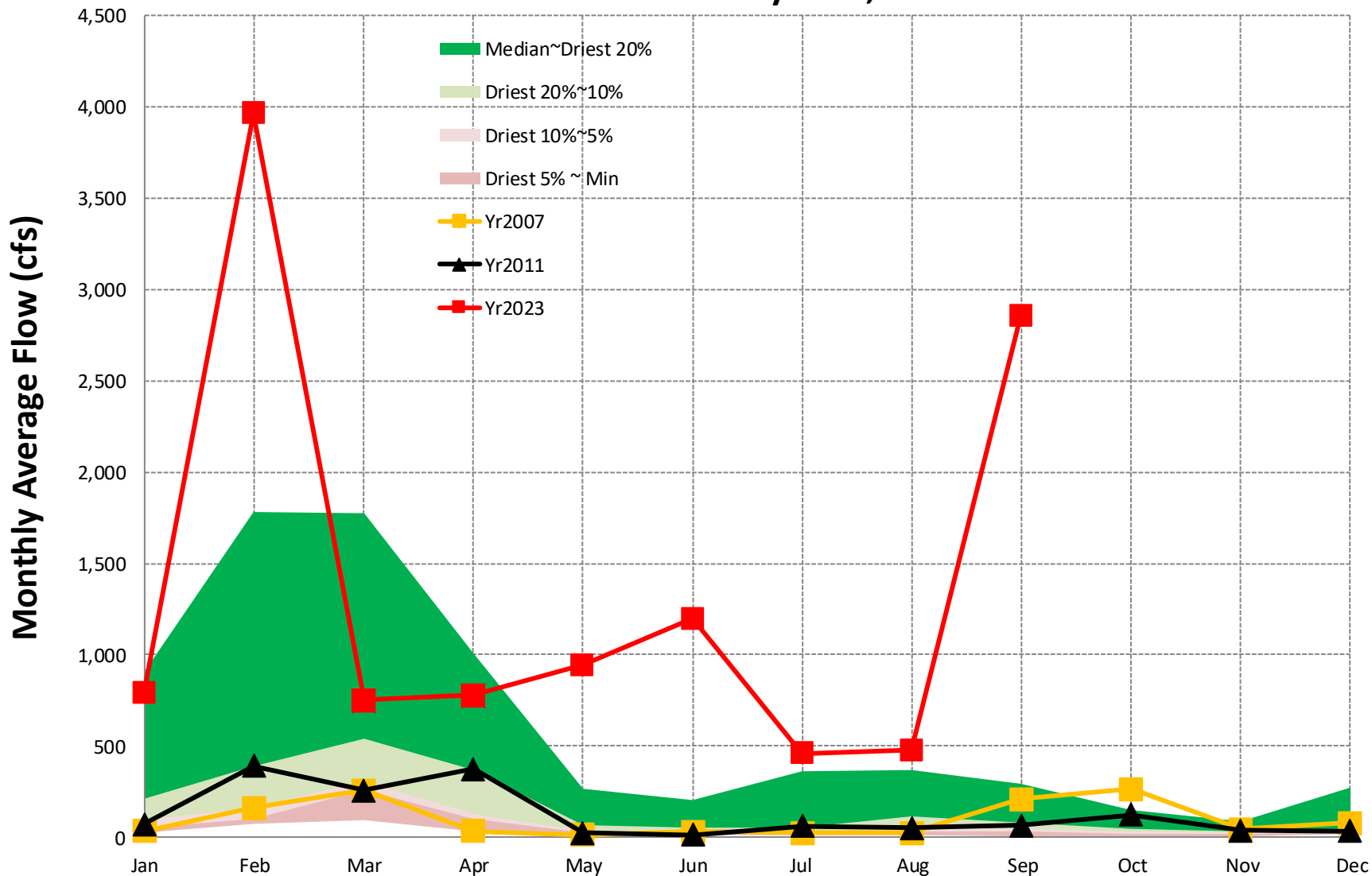
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Gage #31. USGS #02314500, Suwannee Basin, SUWANNEE RIVER AT US 441, AT FARGO, GA



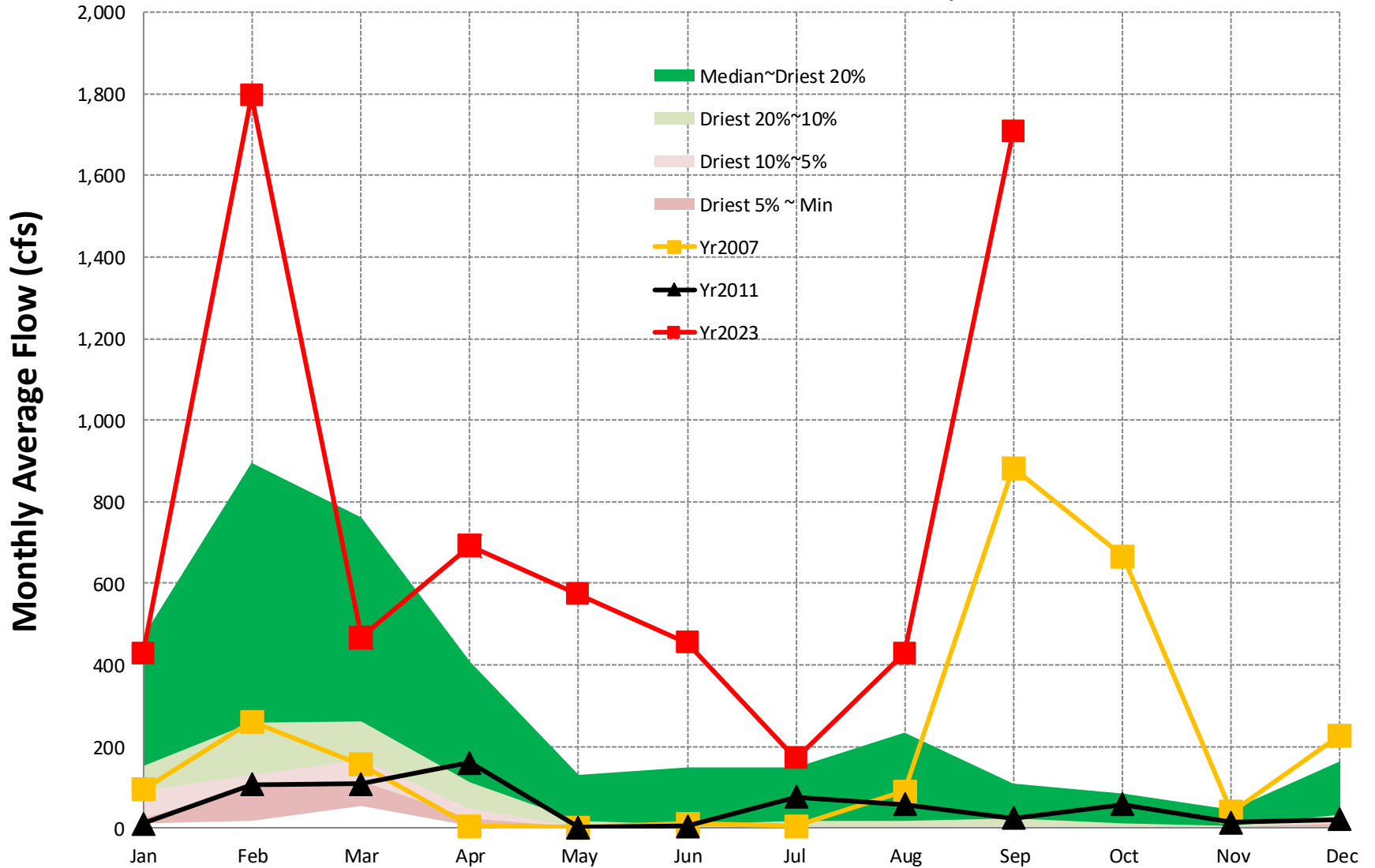
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Gage #32. USGS #02226500, Satilla Basin, Satilla River near Waycross, GA

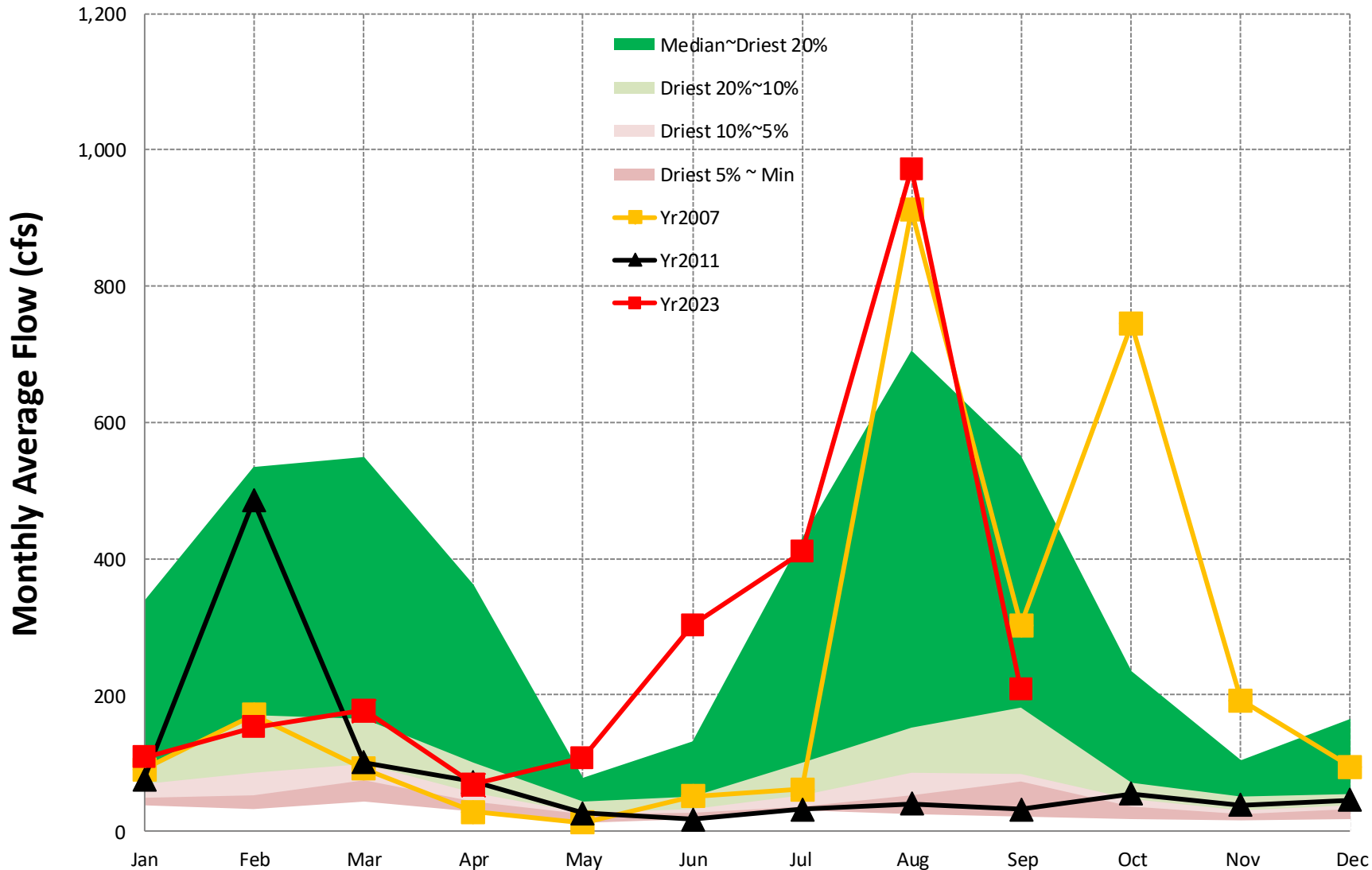


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Gage #33. USGS #02227500, Satilla Basin, LITTLE SATILLA RIVER near OFFERMAN, GA



Gage #34. USGS #02231000, St Mary Basin, ST. MARYS RIVER near MACCLENNY, FL



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Groundwater Levels

Data Source: USGS

Rationale for Choosing USGS Monitoring Wells

EPD monitors 17 groundwater USGS monitoring wells shown on the following slide to assess drought conditions. These wells were selected for monitoring because they have:

- Long-term monitoring records consisting of three decades or more of data; and
- Real-time monitoring that represents the most up-to-date conditions.

USGS Wells Monitored

Chattahoochee Basin

1. 16MM03

Flint Basin

- 2. 11AA01
- 3. 13L180
- 4. 12M017
- 5. 08K001
- 6. 11K003
- 7. 12K014
- 8. 13J004
- 9. 08G001
- 10. 10G313
- 11. 09F520
- 16. 11J011

Oconee Basin

12. 21T001

Tennessee Basin

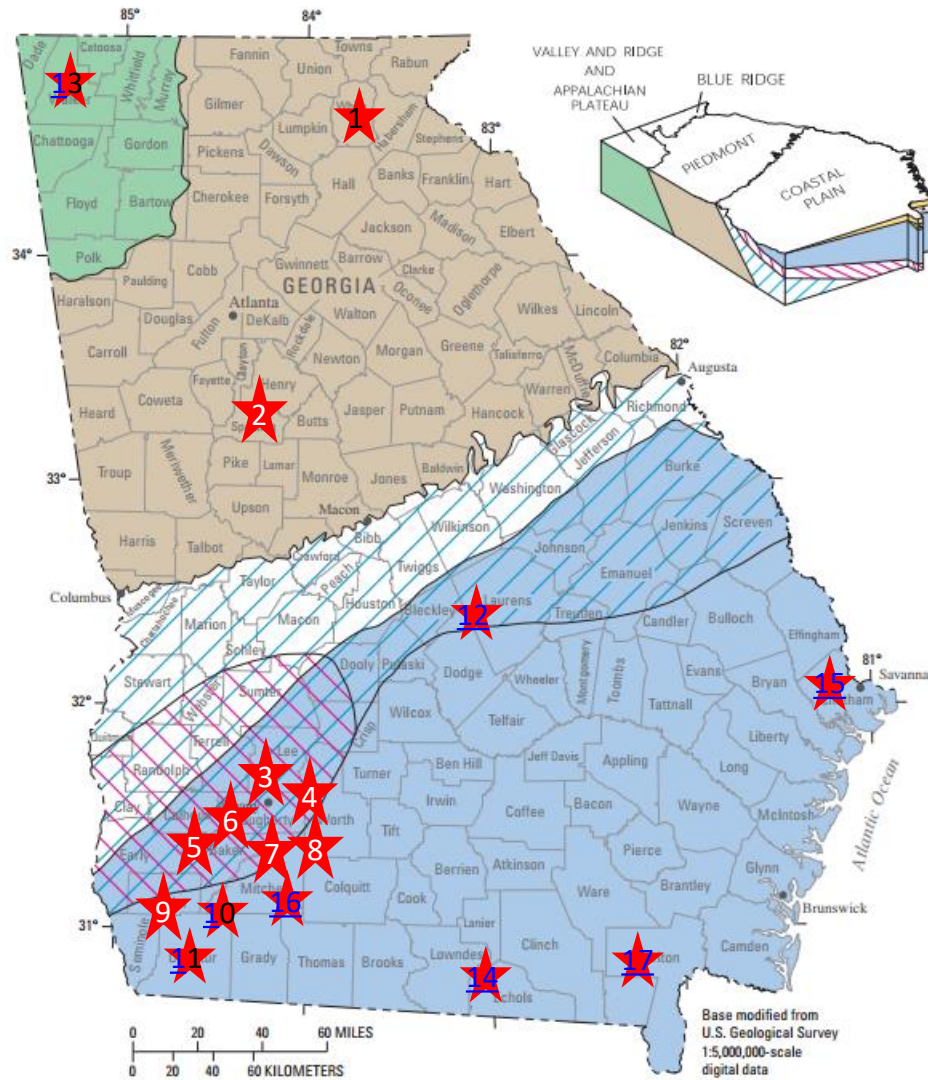
13. 03PP01

Suwanee Basin

- 14. 19E009
- 17. 27E004

Ogeechee Basin

15. 35P094



EXPLANATION

Coastal Plain aquifers	Piedmont and Blue Ridge aquifers
Surficial aquifer system—Not a principal aquifer. Shown on block only	Crystalline-rock aquifers
Floridan aquifer system	Valley and Ridge and Appalachian Plateau aquifers
Claiborne and Clayton aquifers	Paleozoic-rock aquifers
Cretaceous aquifer system	

Figure 2. Area of use of principal aquifers and physiographic provinces in Georgia (modified from U.S. Geological Survey, 2006).

Groundwater Level Graphs

- For each of the 17 groundwater wells, EPD has prepared a graph that shows monthly average groundwater levels from January 2023 through September 2023;
- To help put these levels into perspective, for comparison purposes, each graph also shows:
 - Monthly average levels at that same well for the years 2007 and 2011 when groundwater levels were at or near recorded low levels across much of the state; and
 - And a statistical composite of historical conditions at that same gage showing the “lowest” 50, 20, 10, and 5 percent of all recorded monthly average levels at the same well.

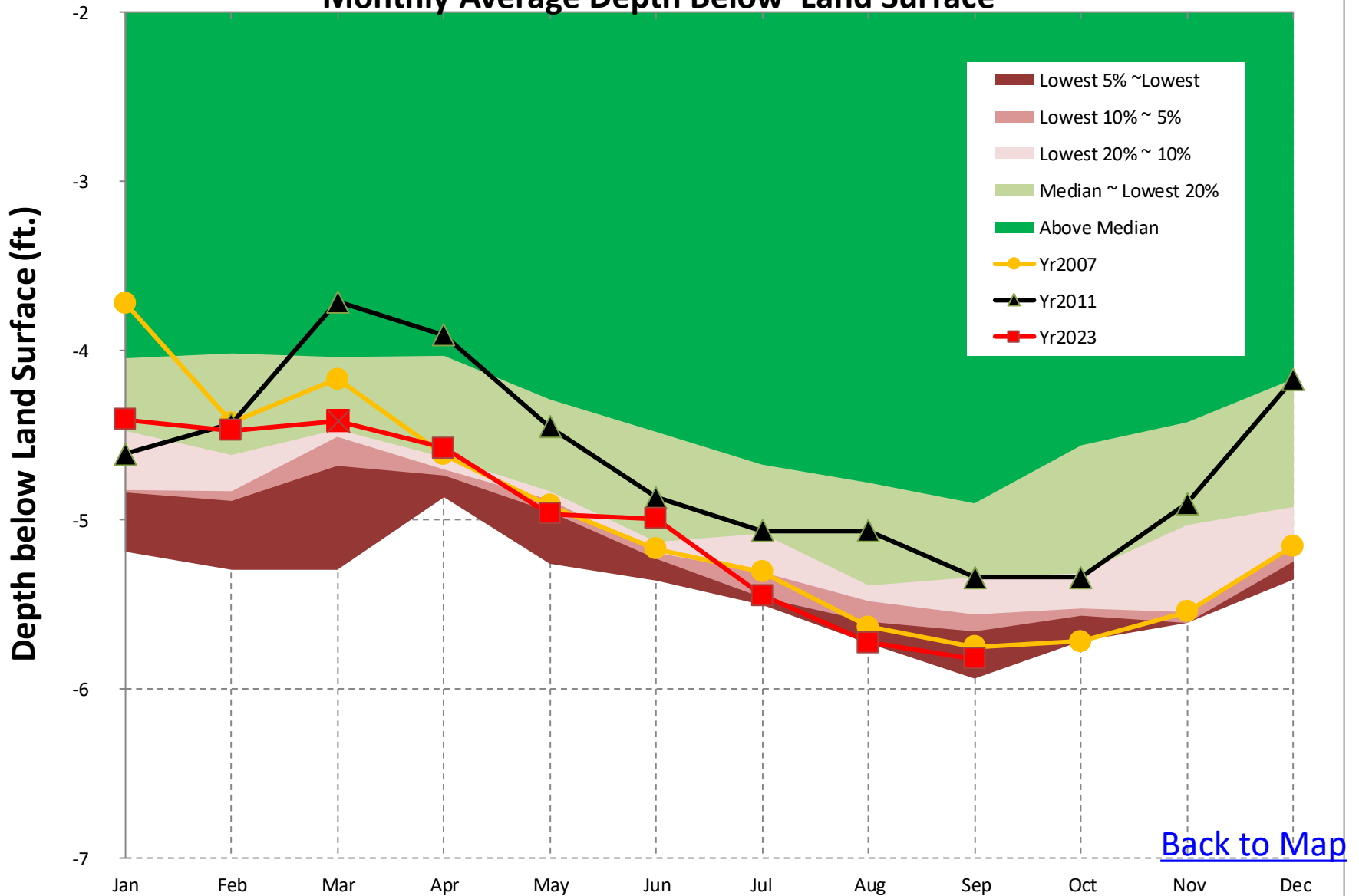
How to Read the Groundwater Level Graphs

Example: [Well #11, 09F520, Flint River Basin](#)

The groundwater level graph for Well #11, USGS 09F520 shows:

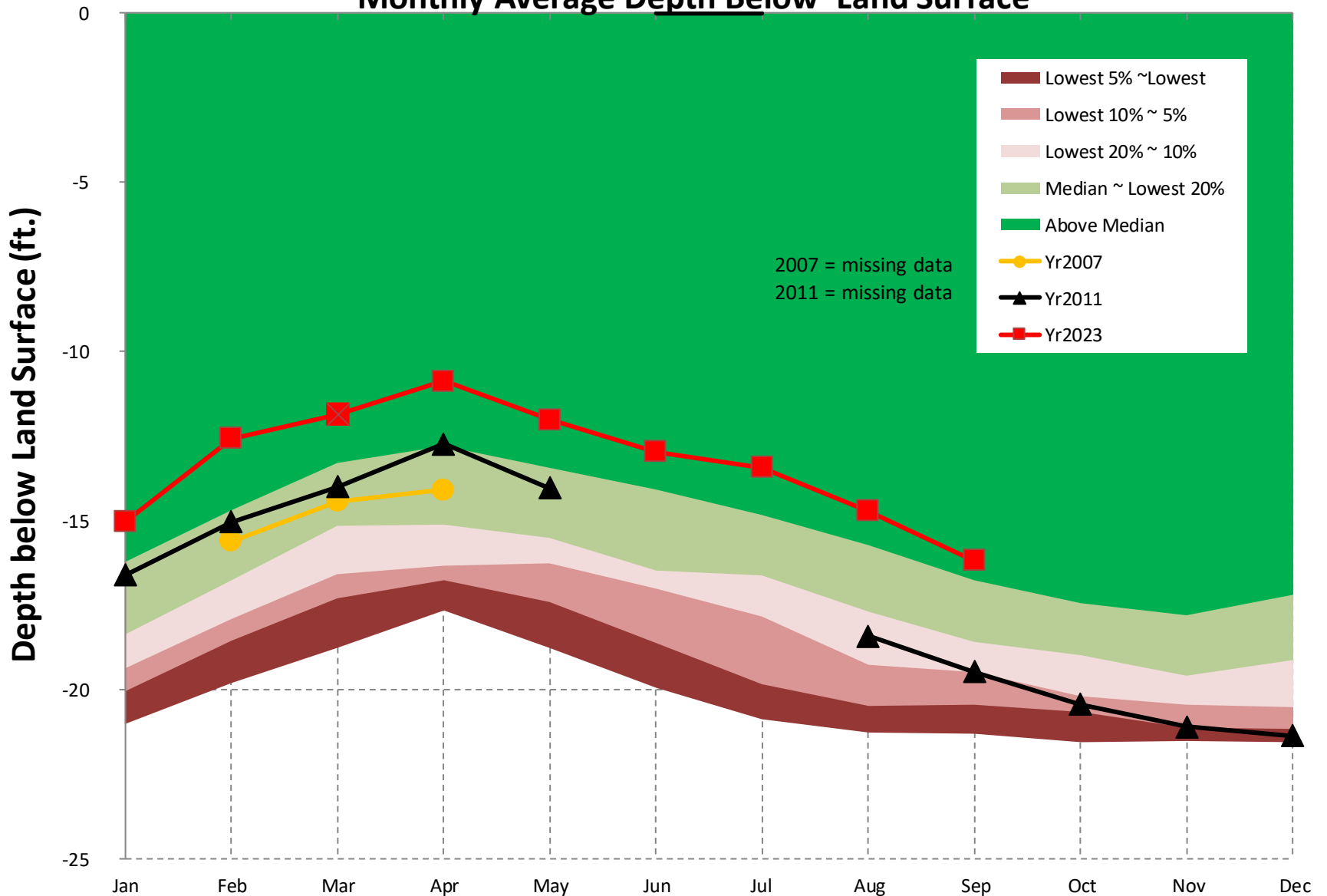
- The average monthly groundwater level in September 2023 was 50.6 ft below land surface. The statistical composite of all historical data for this well shows that monthly average groundwater levels in September have historically been lower than September 2023 about 12% of the time; about 88% of the time in September they have been higher.
- The average monthly groundwater level in September 2011 was 51.0 ft below land surface. The statistical composite of all historical data for this well shows that monthly average groundwater levels in September have historically been lower than September 2011 about 5~10% of the time; about 90~95% of the time in September they have been higher.
- The average monthly groundwater level in September 2007 was 51.1 ft below land surface. The statistical composite of all historical data for this well shows that monthly average groundwater levels in September have historically been lower than September 2007 about 2~5% of the time; about 95~98% of the time in September they have been higher.

Well #1, 16MM03, Crystalline Rocks Aquifer in Chattahoochee Basin, Monthly Average Depth Below Land Surface

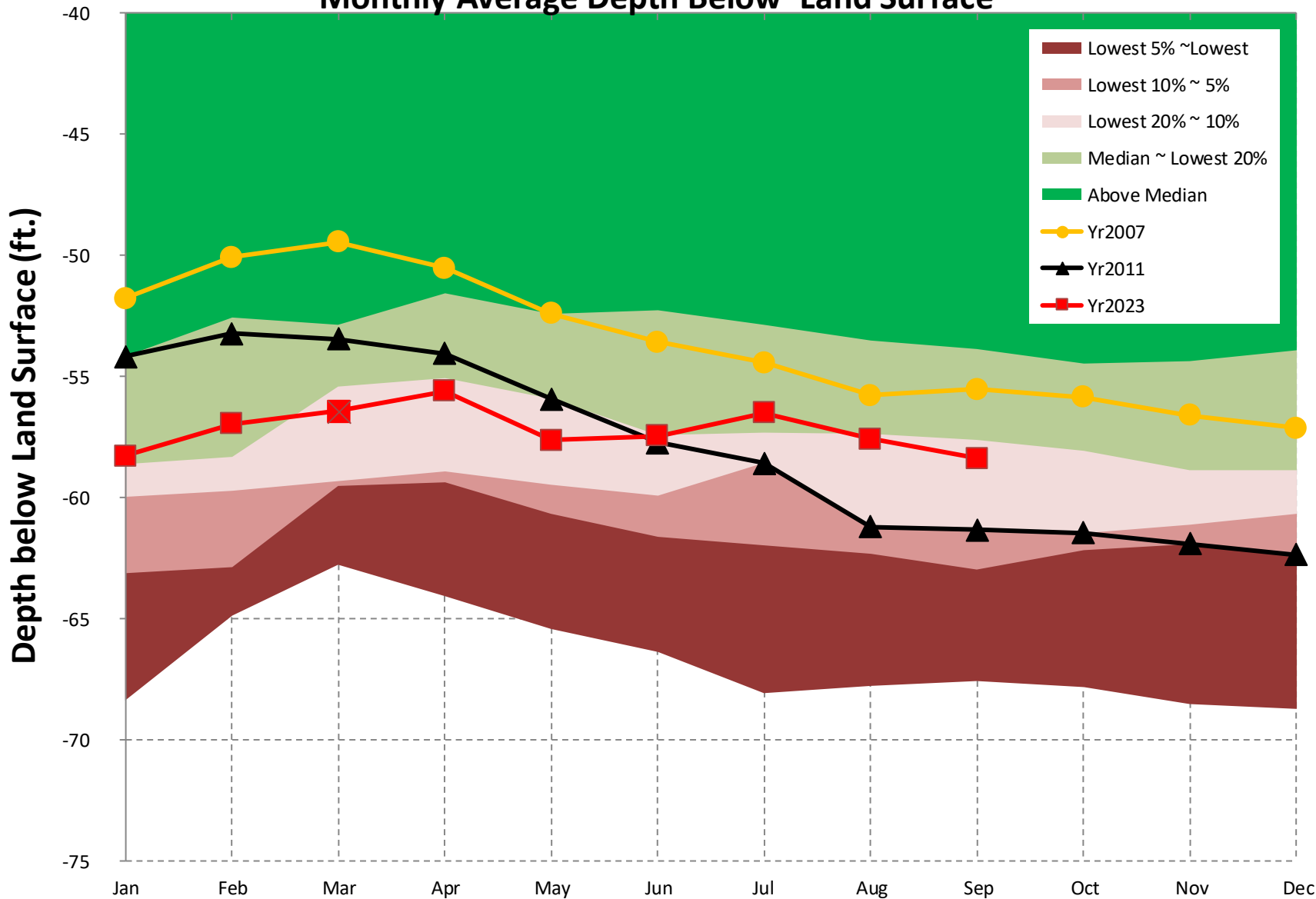


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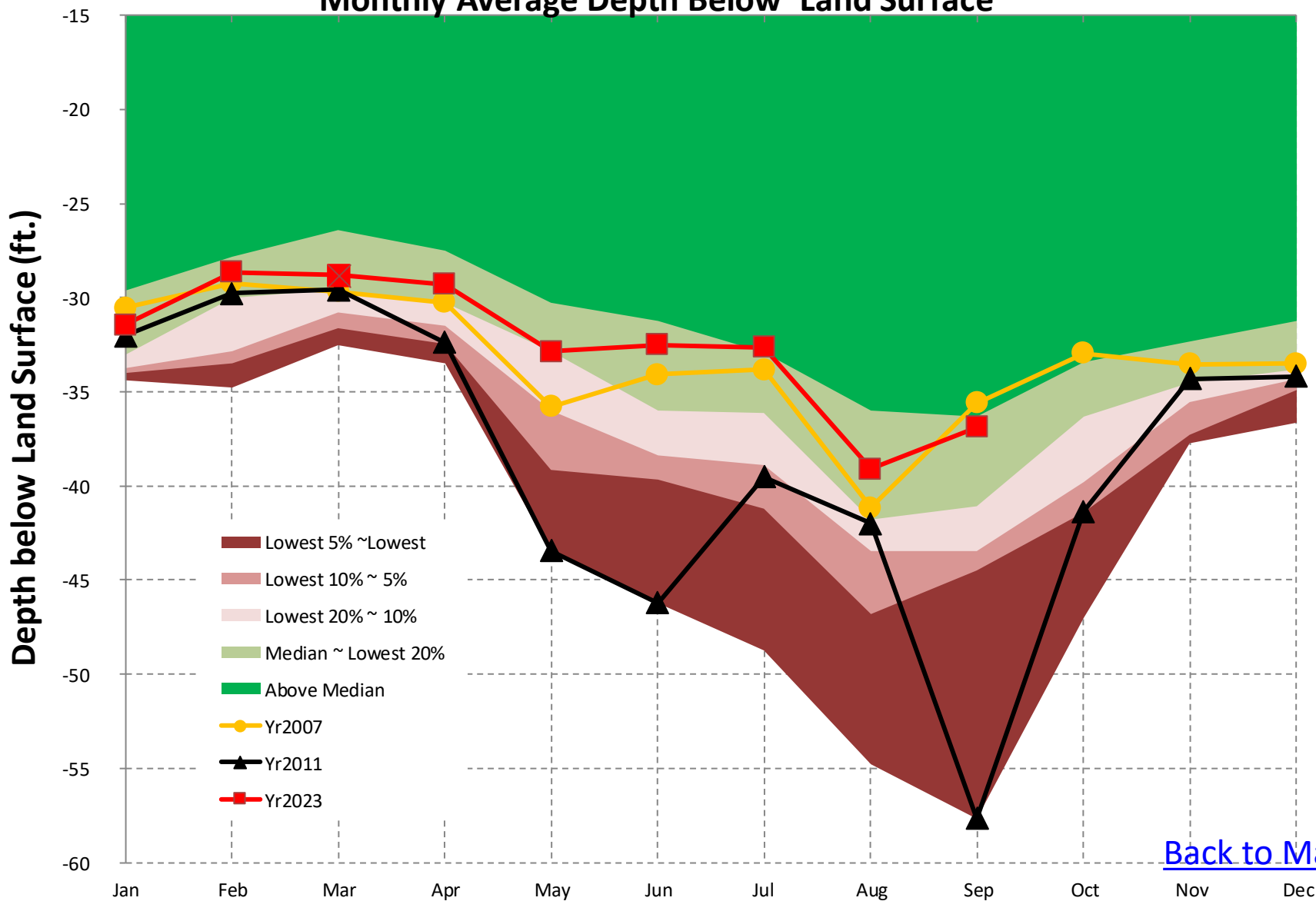
Well #2, 11AA01, Surficial Aquifer in Flint Basin, Monthly Average Depth Below Land Surface



Well #3, 13L180, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface

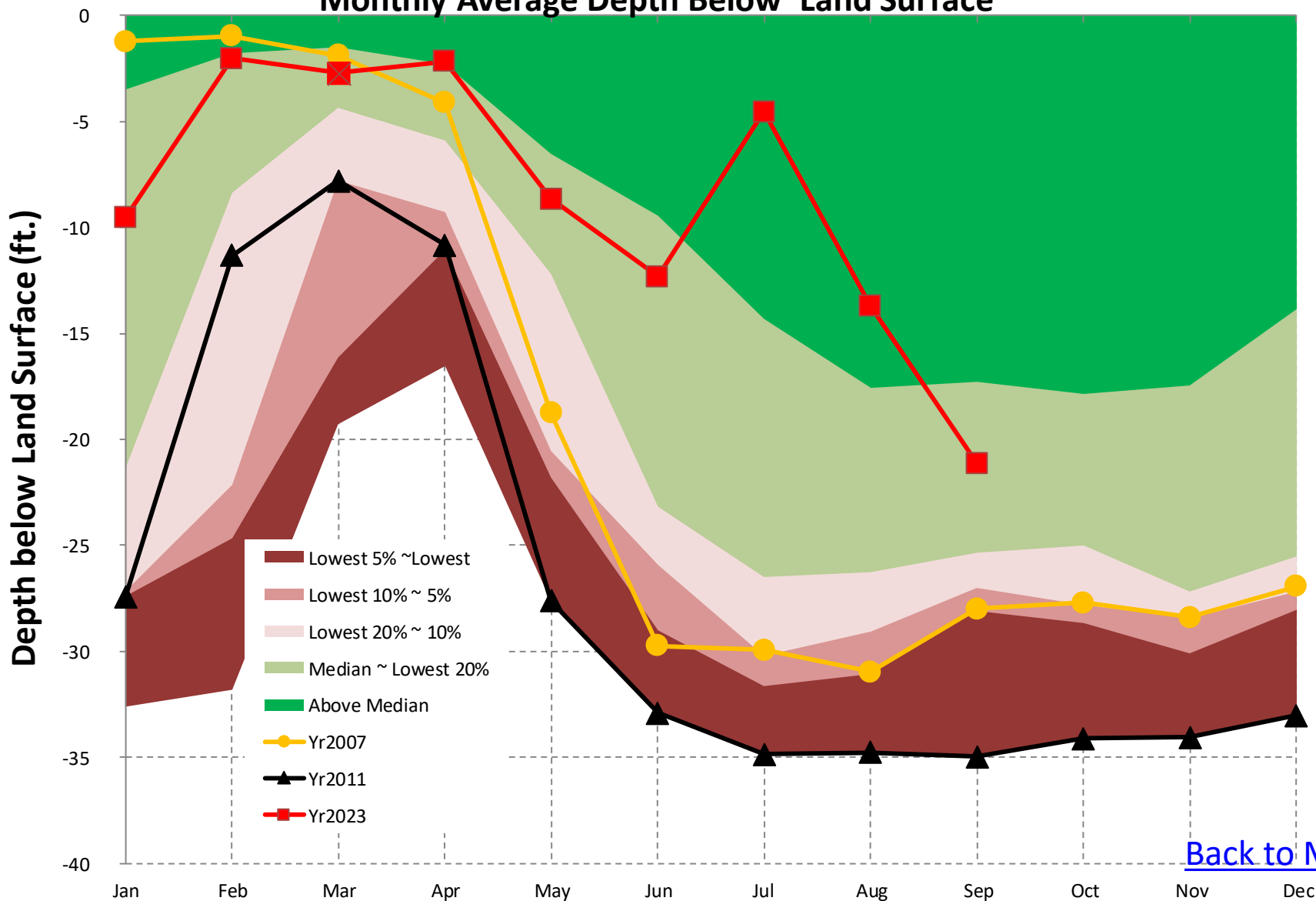


Well #4, 12M017, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface



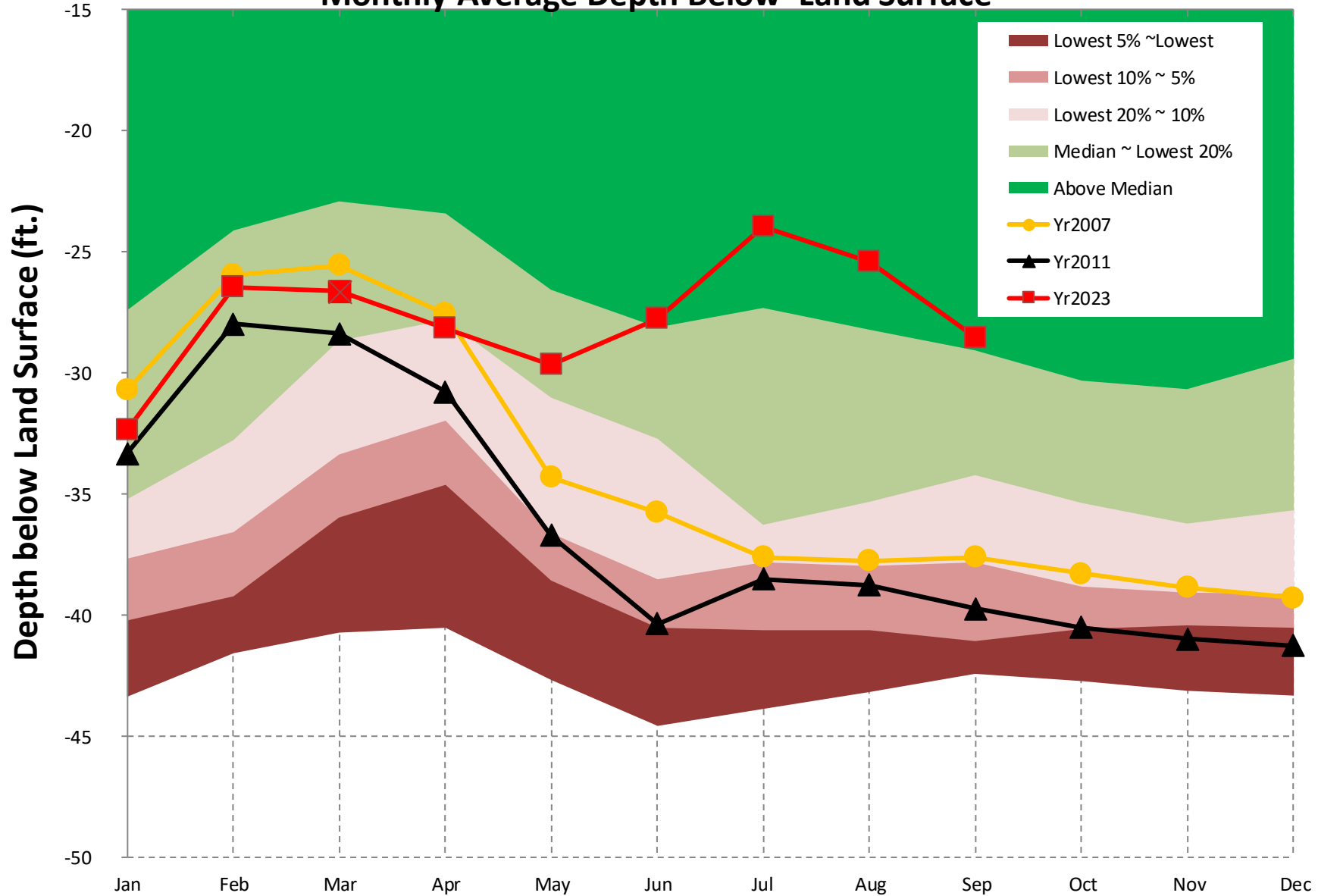
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Well #5, 08K001, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface



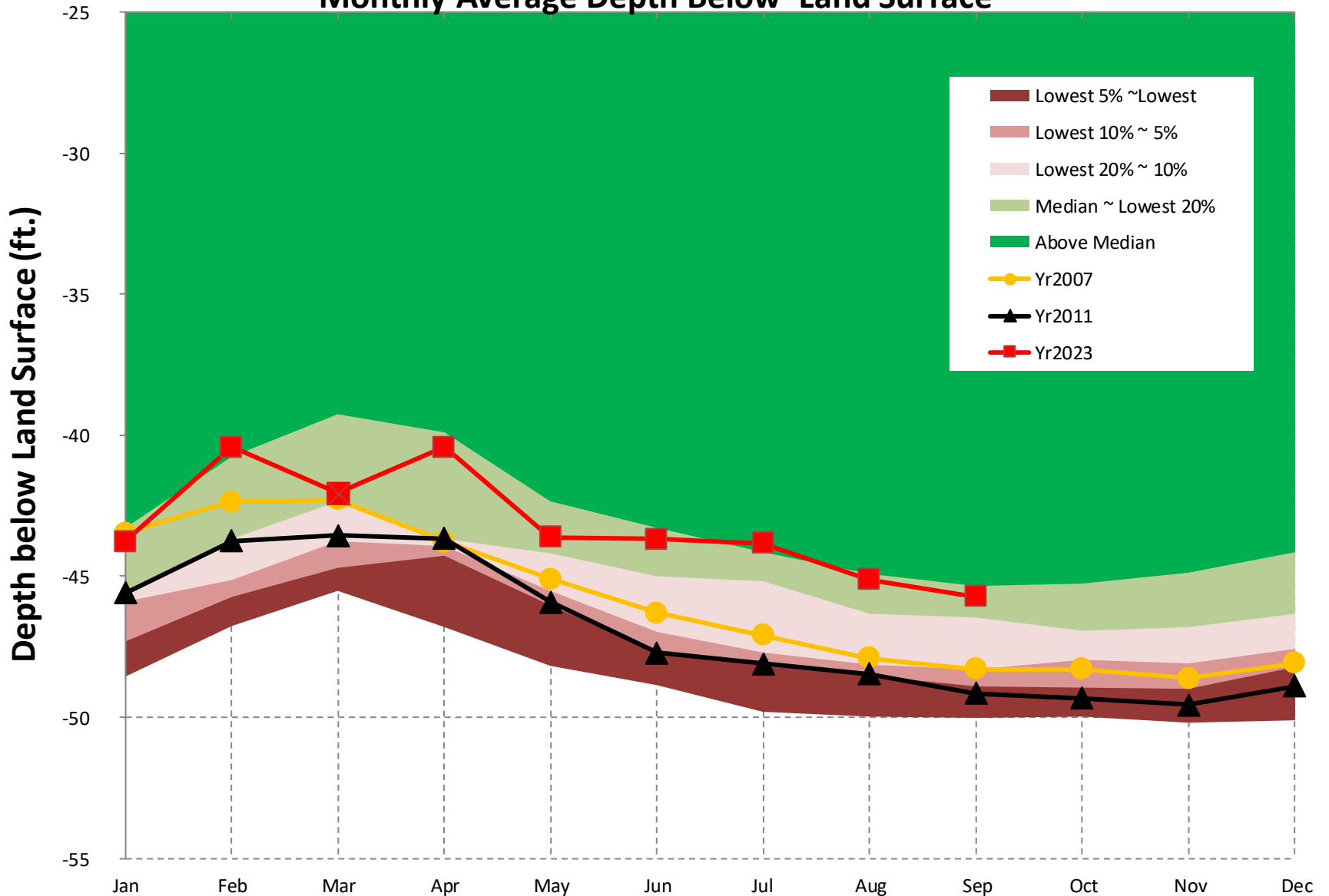
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Well #6, 11K003, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface



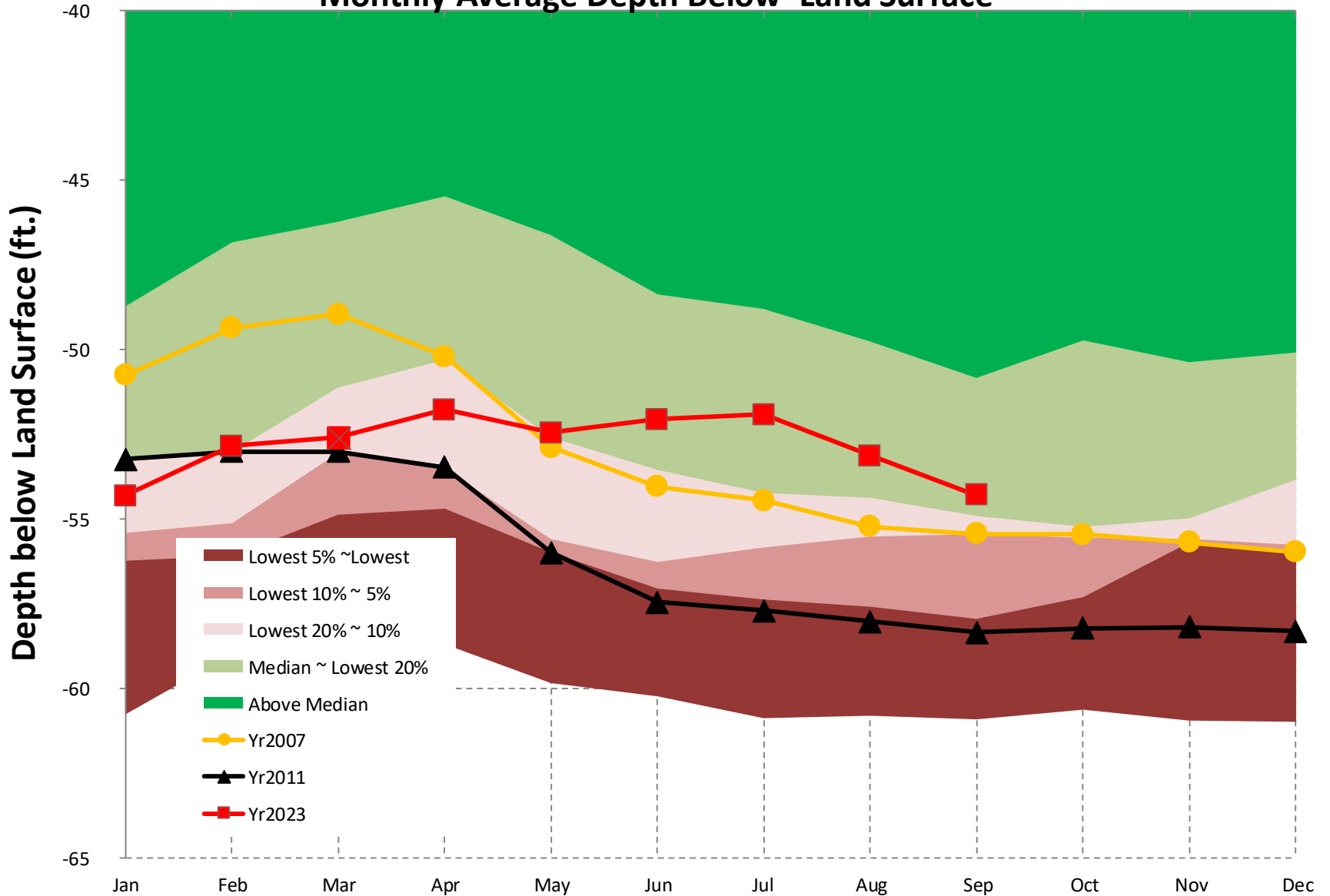
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Well #7, 12K014, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface



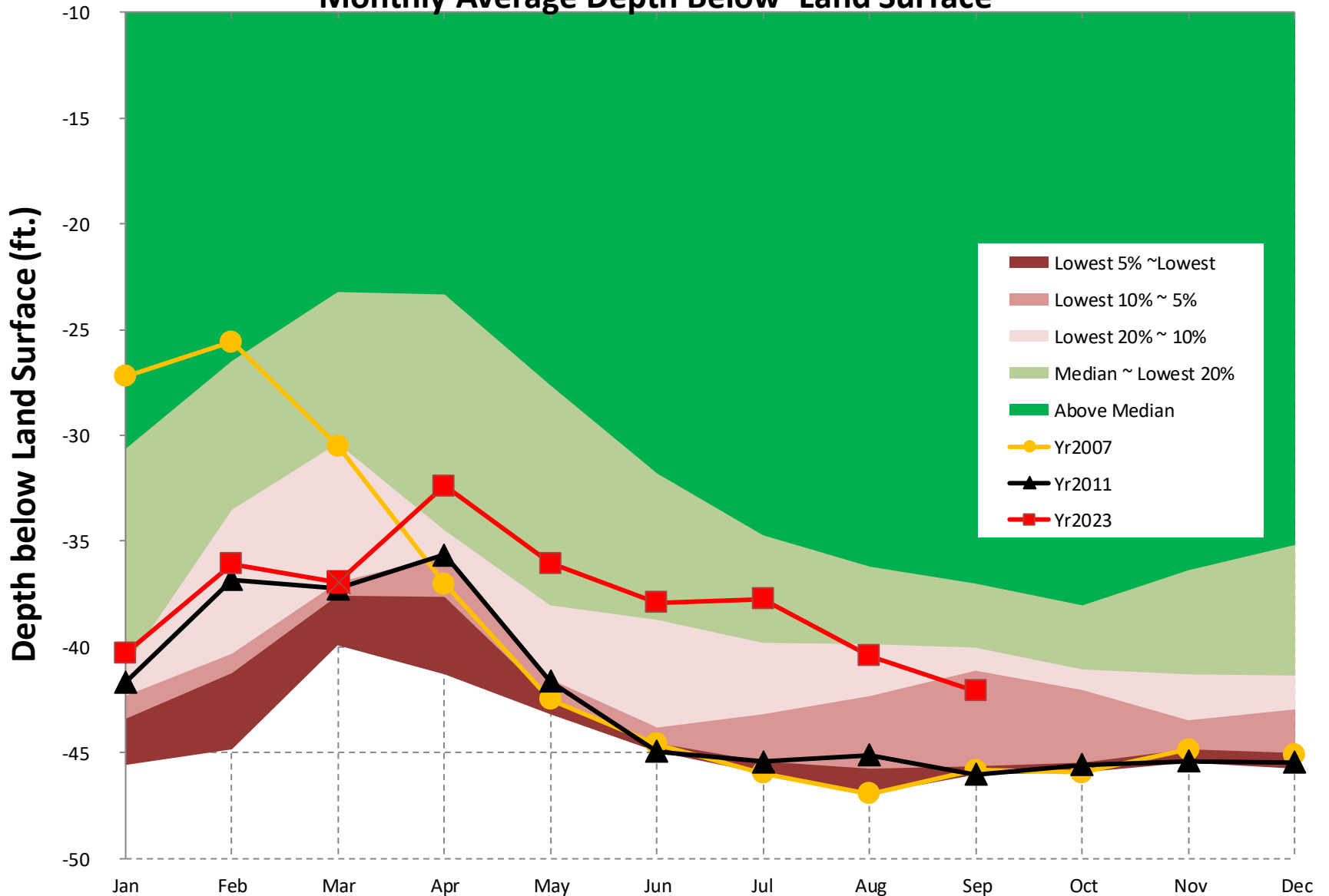
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Well #8, 13J004, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface



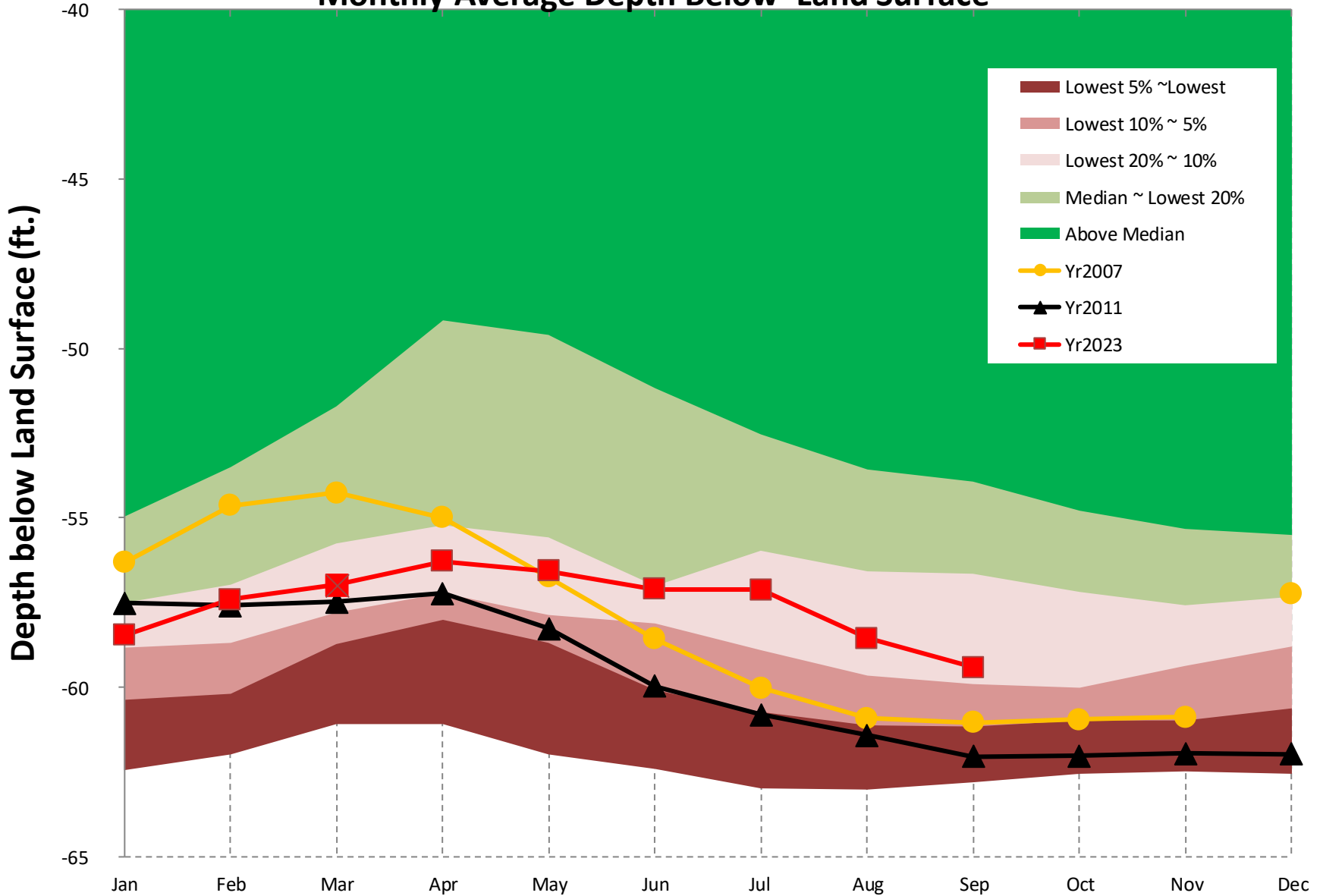
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Well #9, 08G001, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface



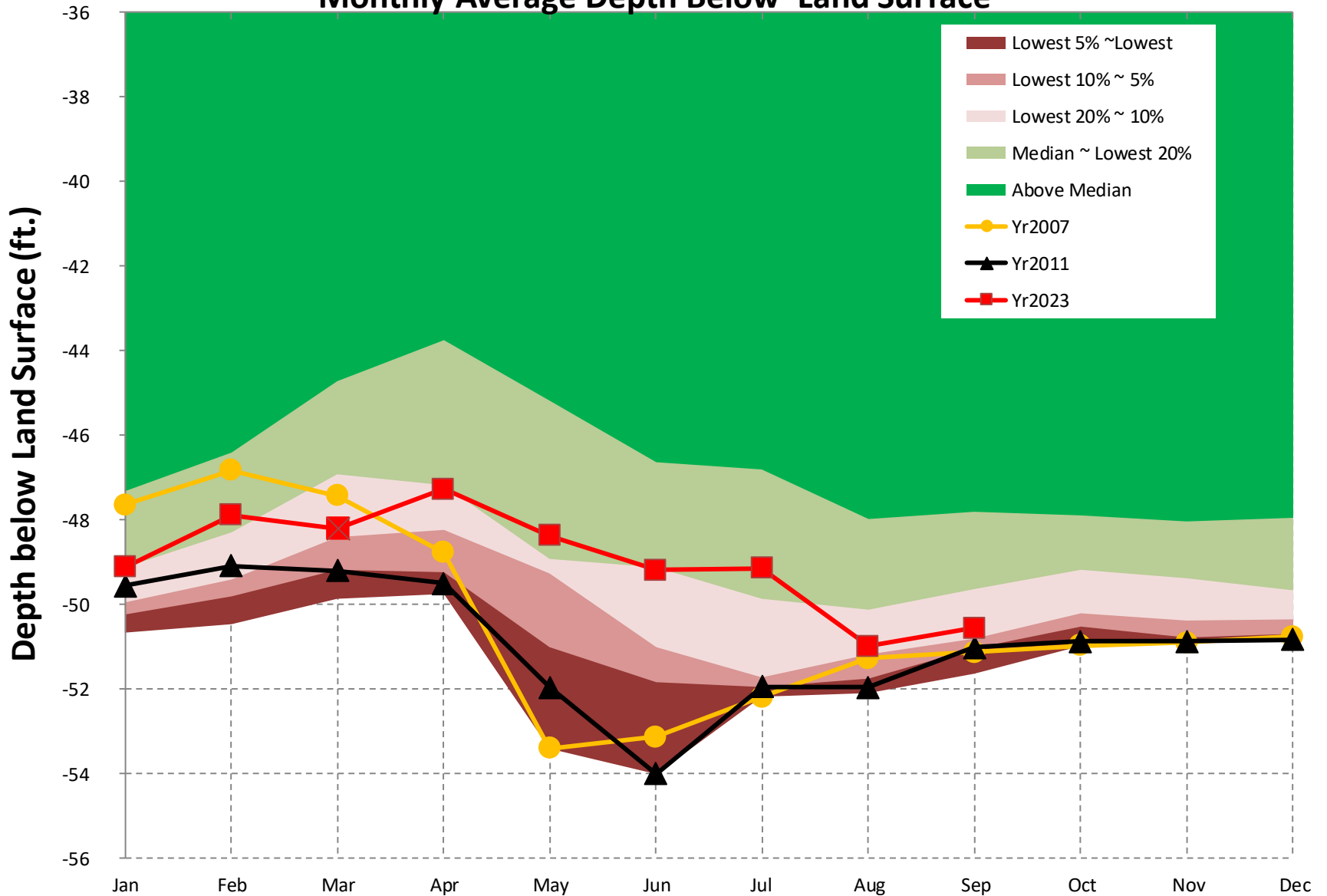
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Well #10, 10G313, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface

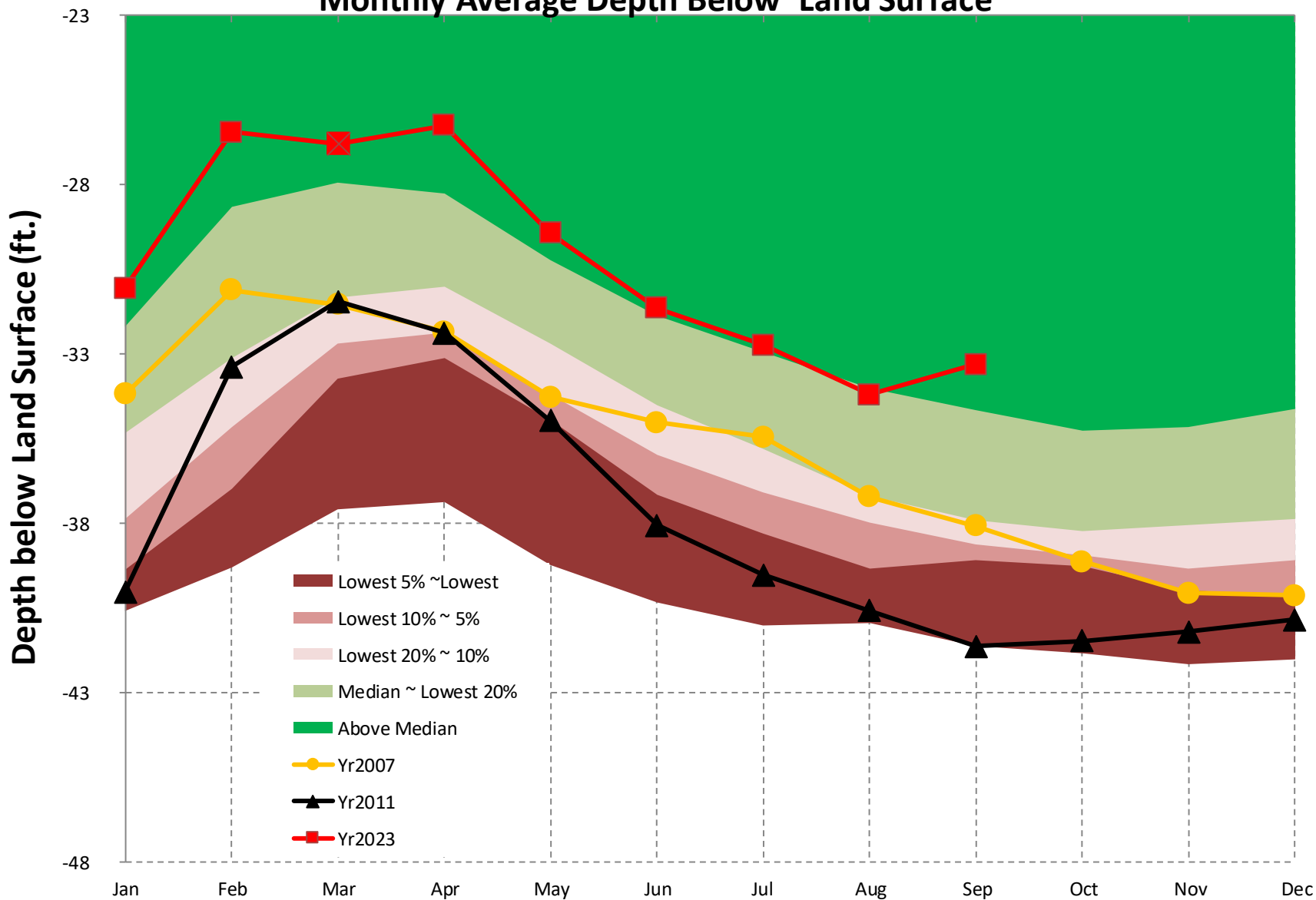


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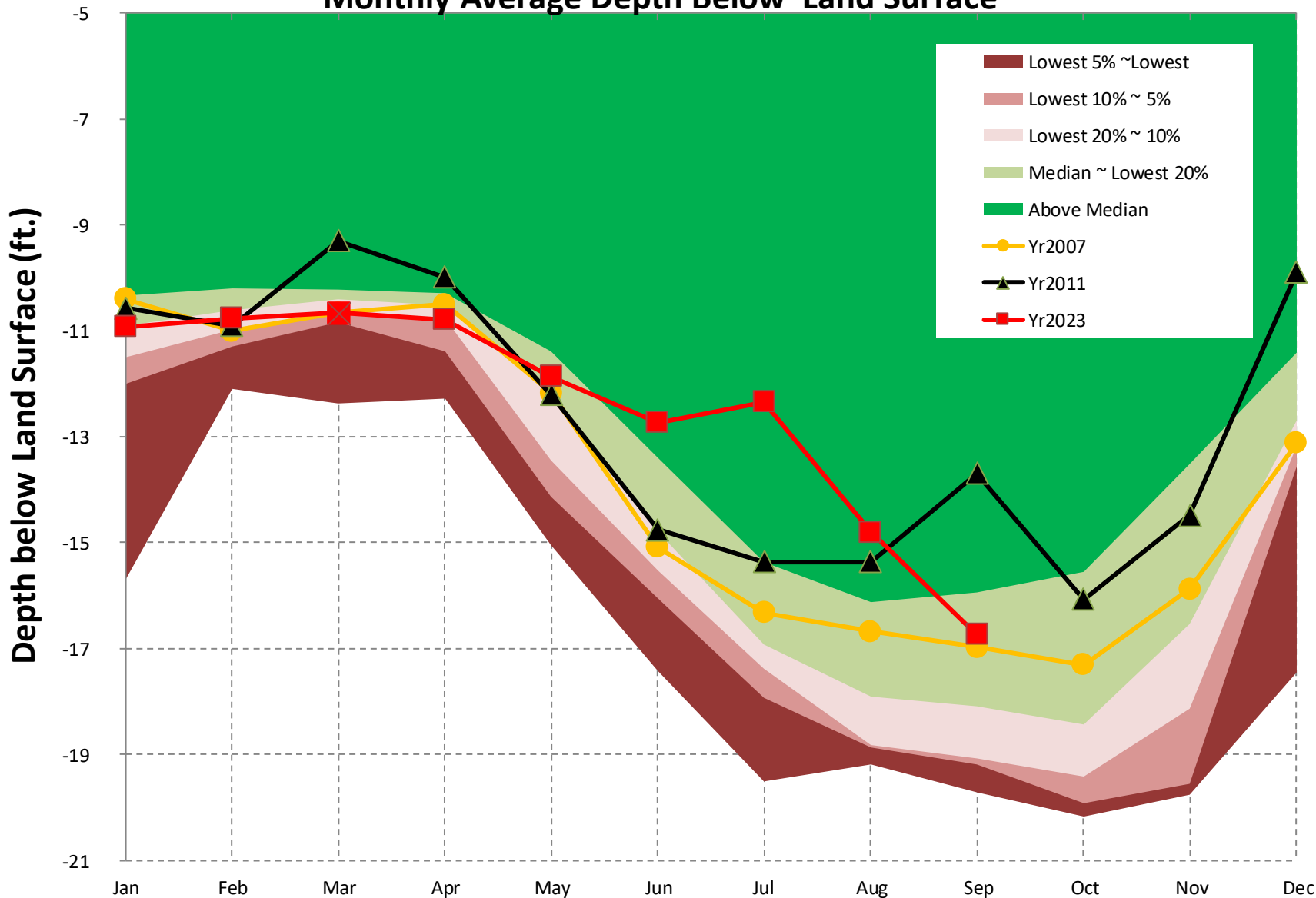
Well #11, 09F520, Floridan Aquifer in Flint Basin, Monthly Average Depth Below Land Surface



Well #12, 21T001, Floridan Aquifer in Oconee Basin, Monthly Average Depth Below Land Surface

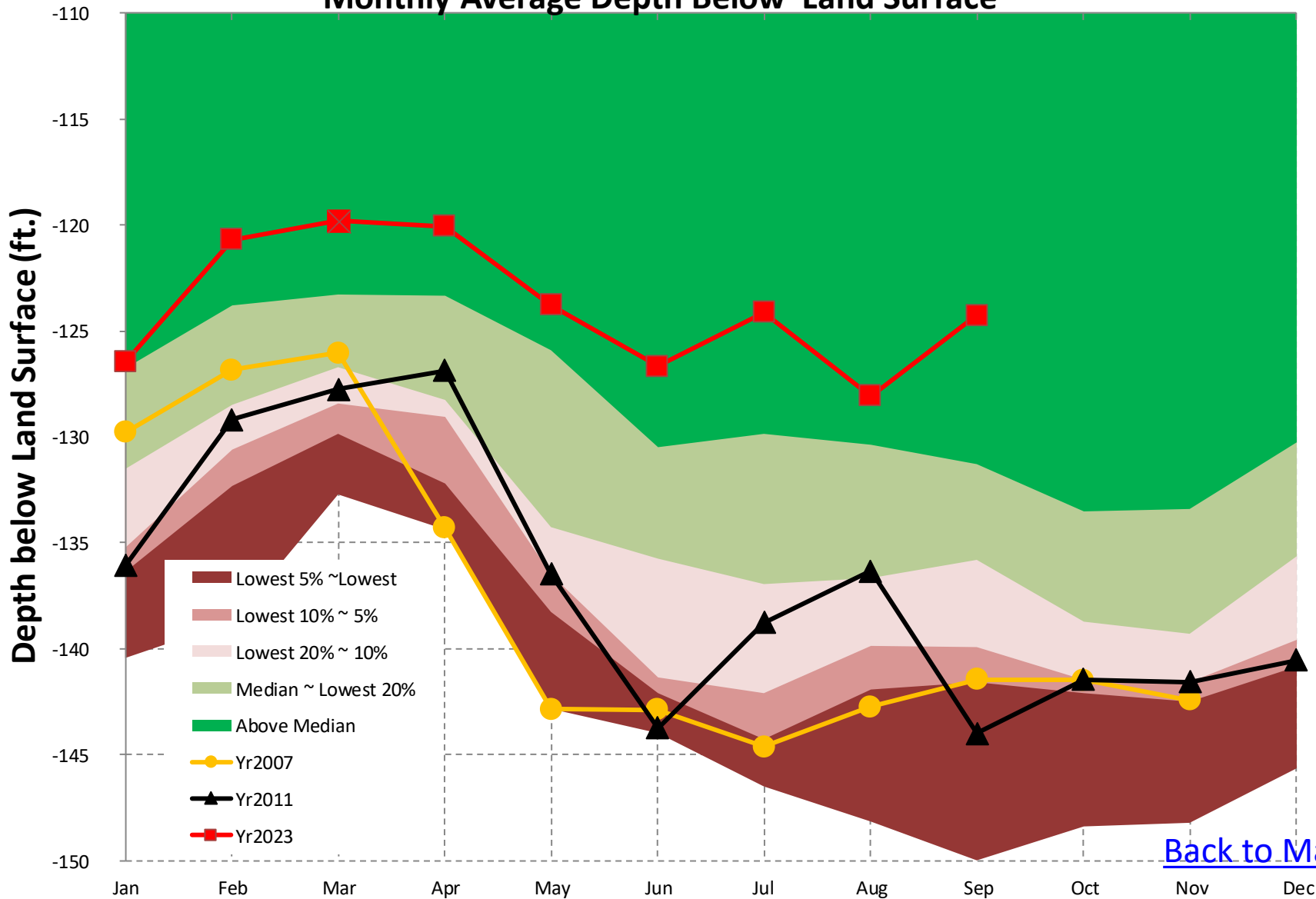


Well #13, 03PP01, Valley and Ridge Aquifer in Tennessee Basin, Monthly Average Depth Below Land Surface



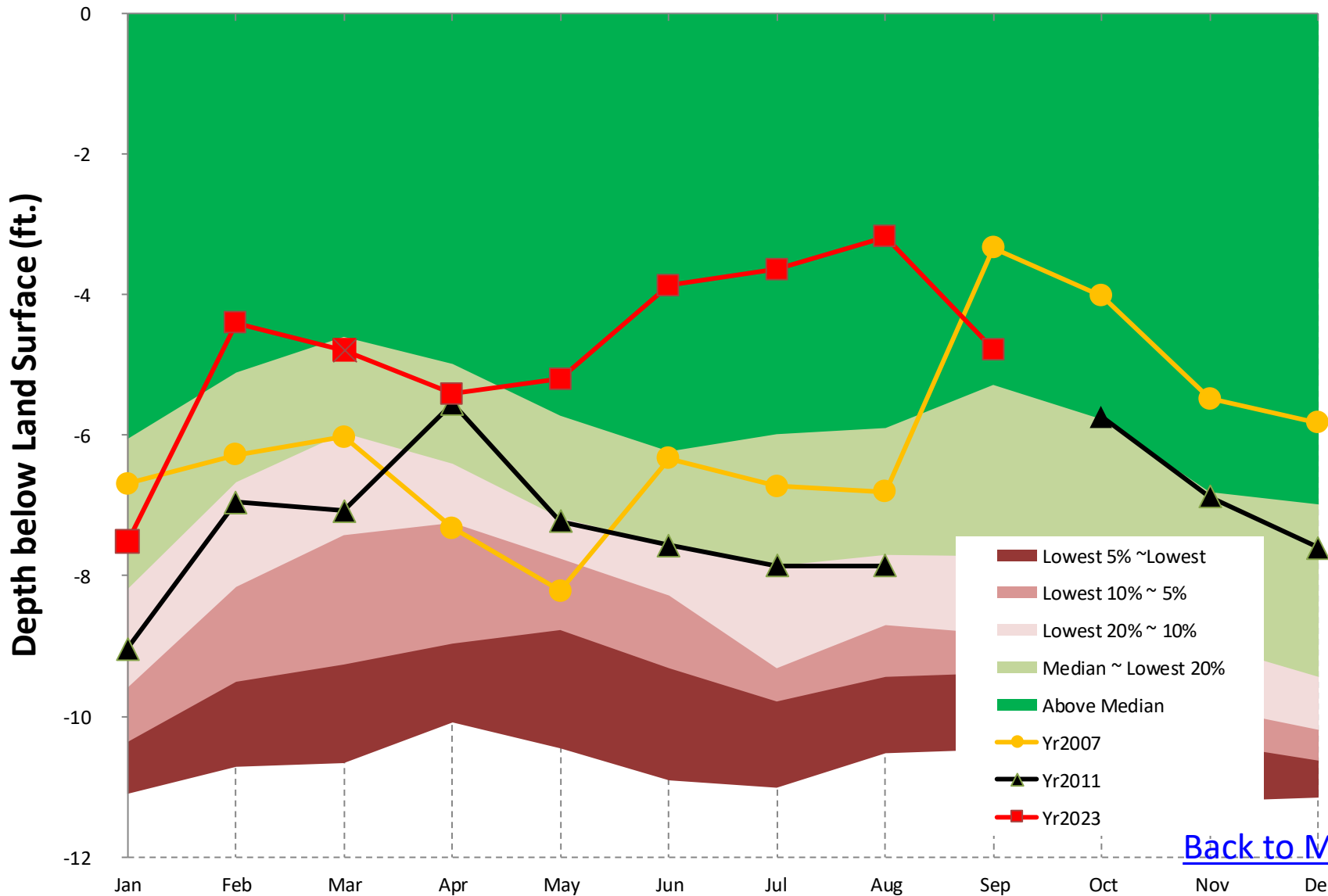
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Well #14, 19E009, Floridan Aquifer in Suwannee Basin, Monthly Average Depth Below Land Surface



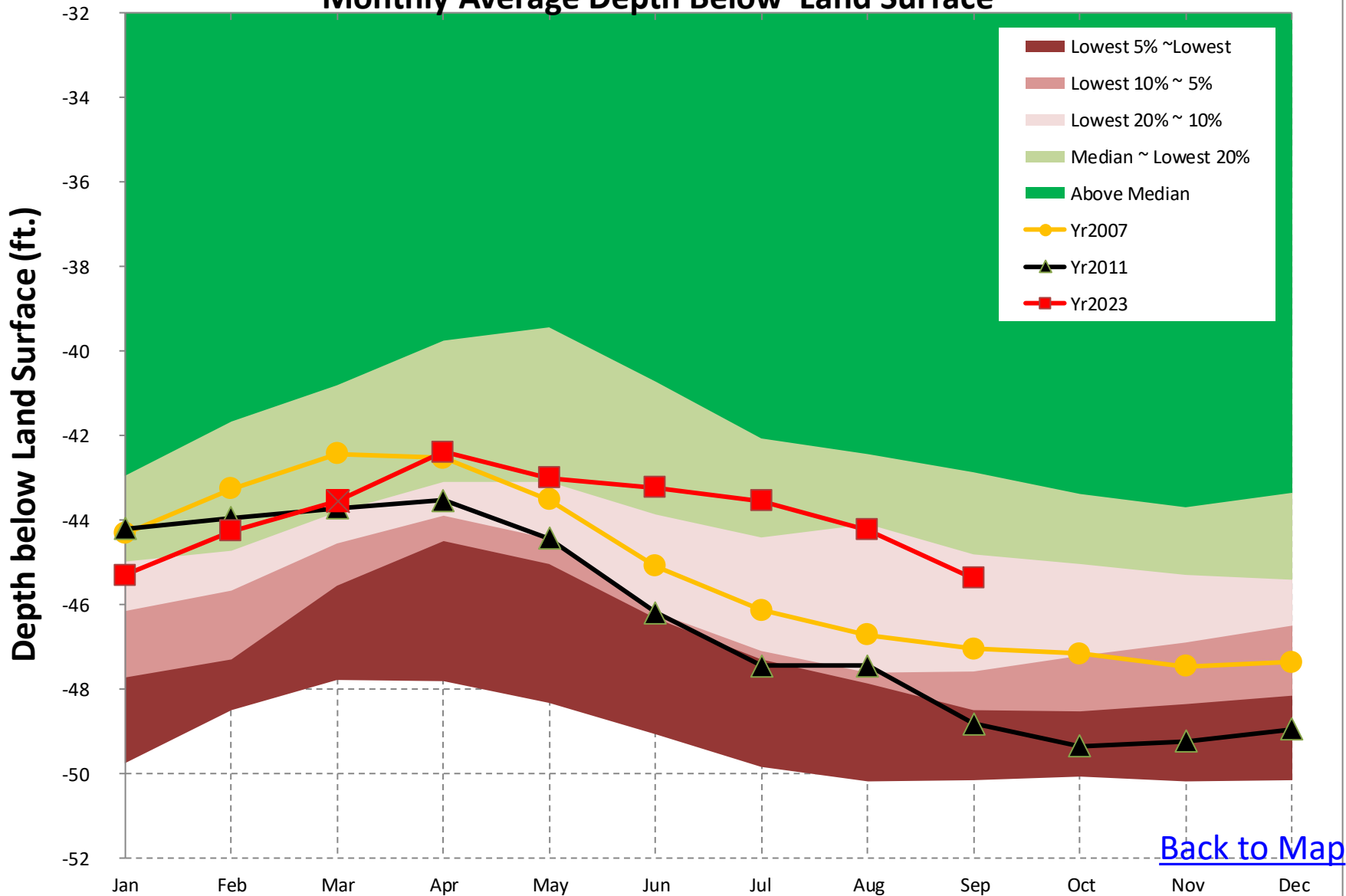
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Well #15, 35P094, Surficial Aquifer in Ogeechee Basin, Monthly Average Depth Below Land Surface



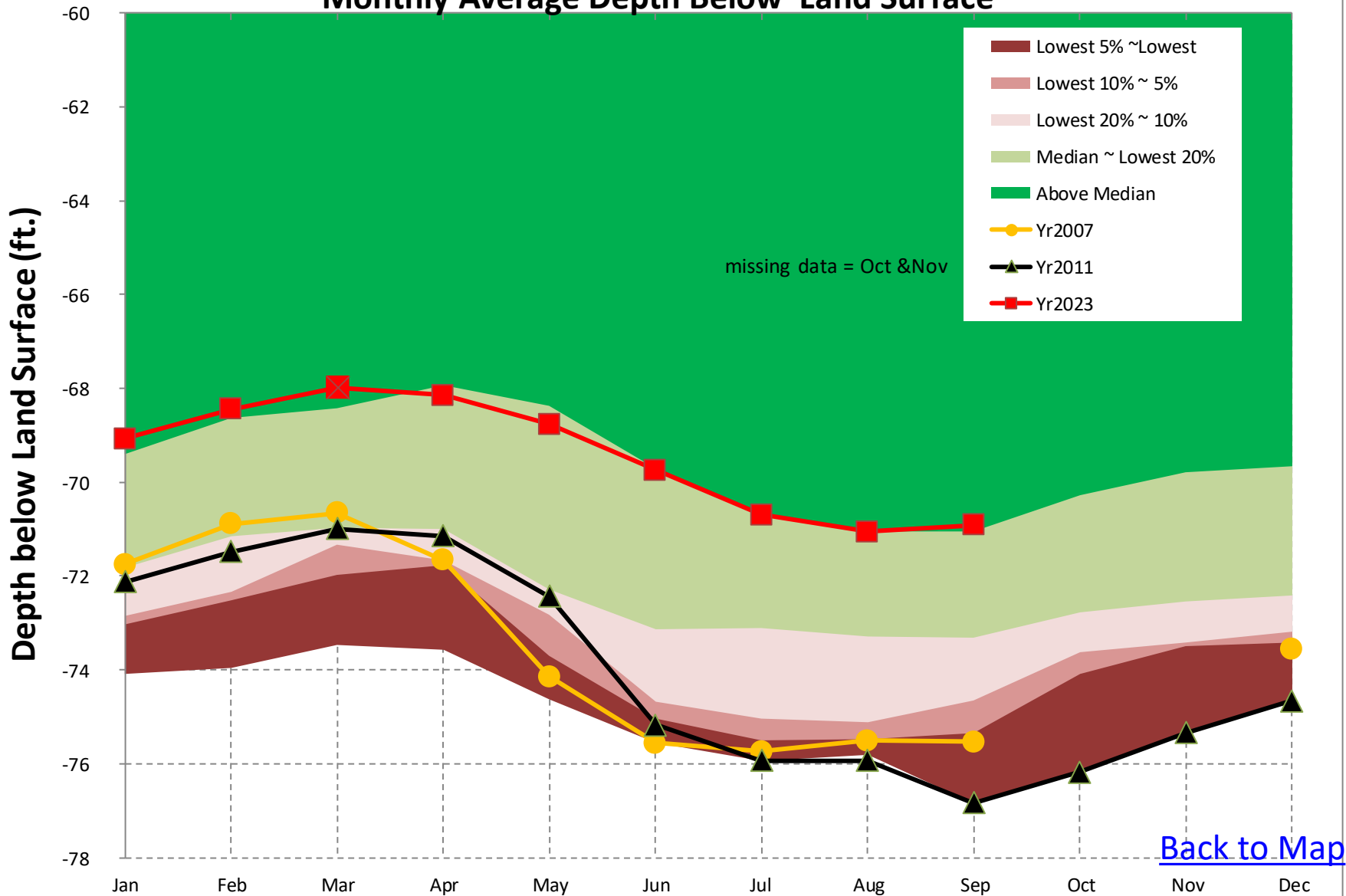
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Well #16, 11J011, Floridan Aquifer in Suwanee Basin, Monthly Average Depth Below Land Surface



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Well #17, 27E004, Floridan Aquifer in Suwanee Basin, Monthly Average Depth Below Land Surface



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Reservoir Levels

Data Source:
US Army Corps of Engineers

Coosa Basin

1. Carters
2. Allatoona

Chattahoochee Basin

3. Lanier
4. West Point
5. W.F. George

Savannah Basin

6. Hartwell
7. Thurmond

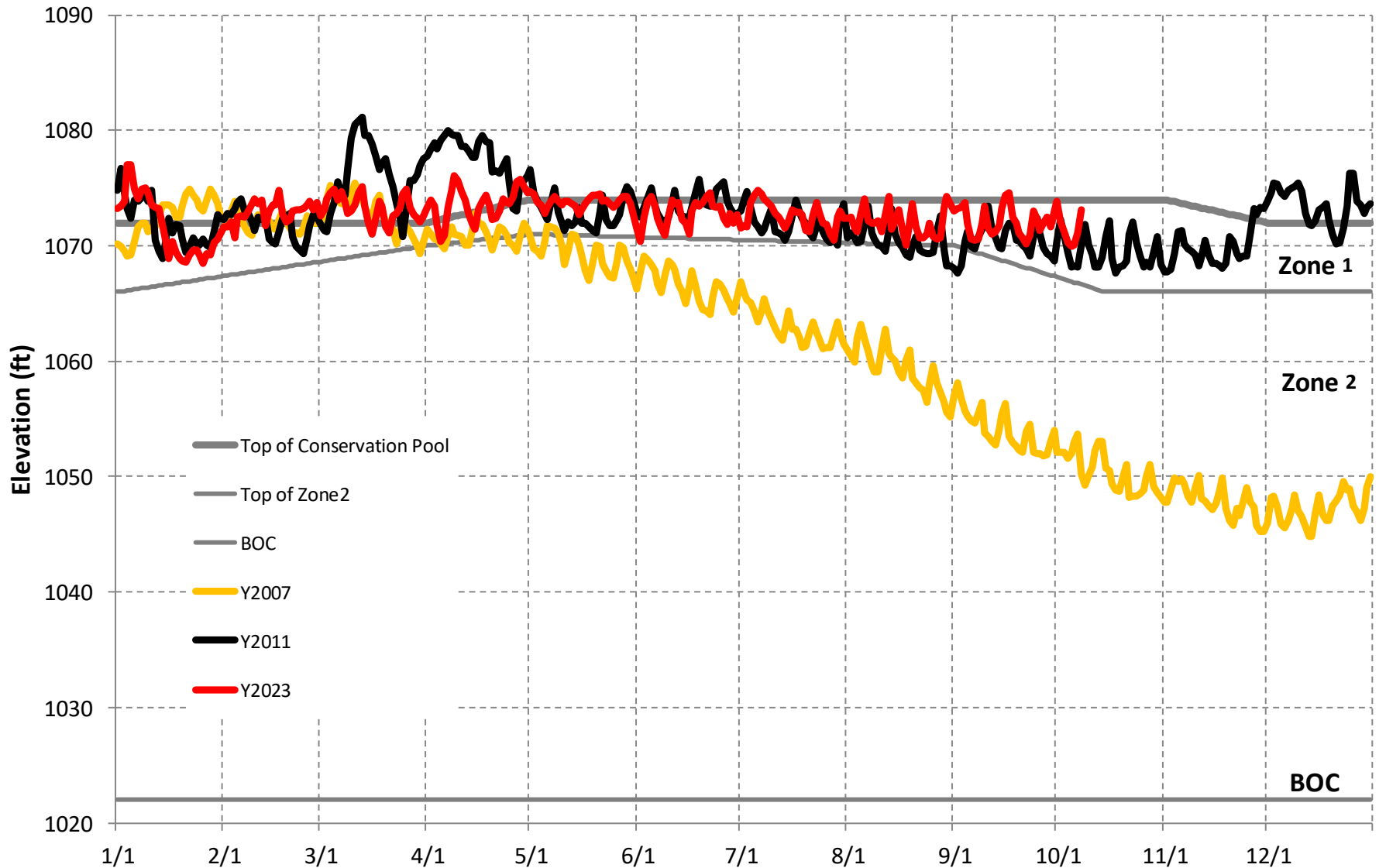


EPD monitors the water levels of seven reservoirs to assess drought conditions.

Reservoir Elevation Graphs

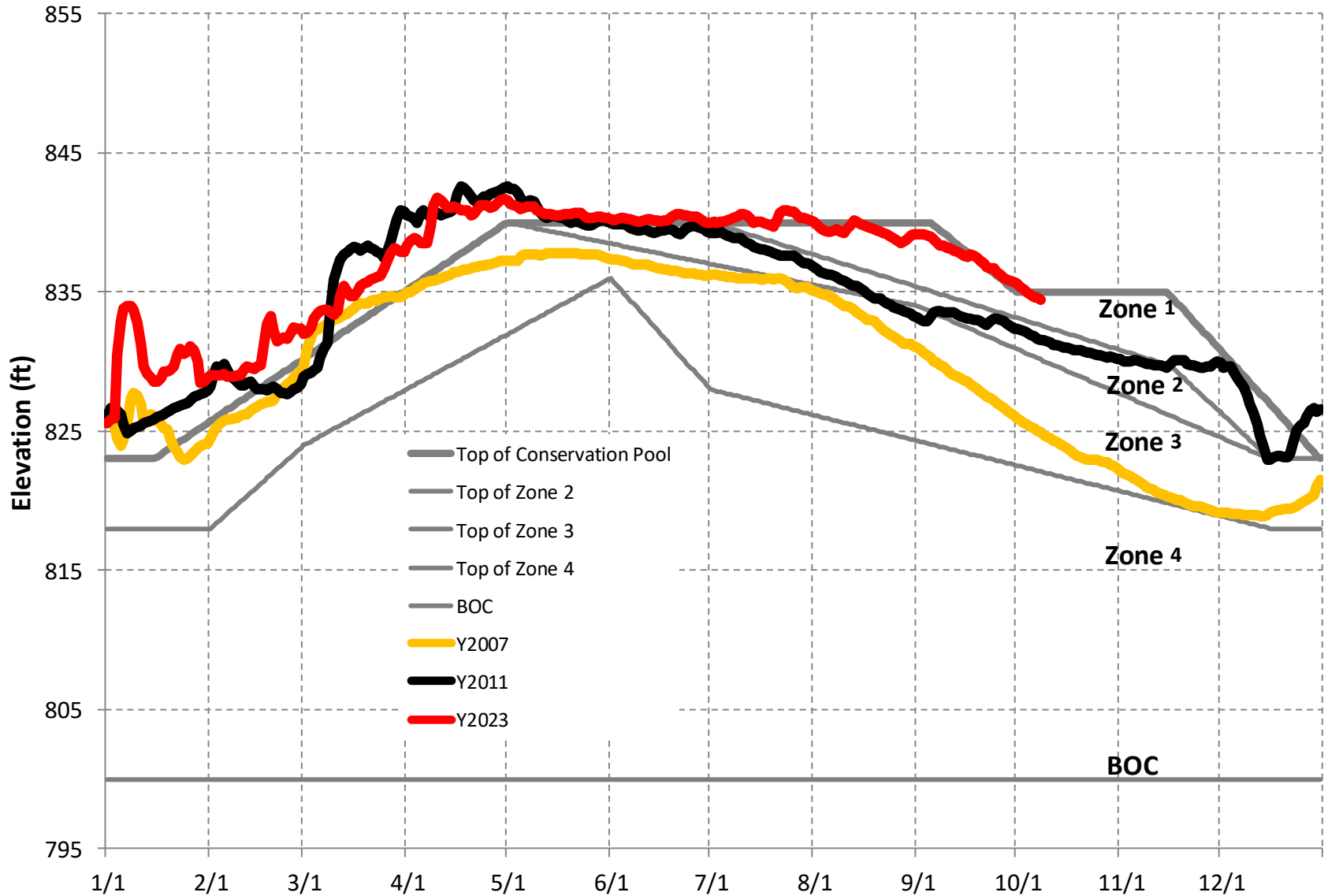
- The following graphs show the reservoir elevation curves for January 2023 through September 2023.
- Each graph also shows the Action Zone Divides (or Levels) for each reservoir
 - Zone 1 is the top layer of the conservation pool
 - Zone 2 is the layer below Zone 1
 - Zone 4 is the lowest layer in the conservation pool
 - There is no conservation storage below the bottom of Zone 4
- To put 2023 reservoir elevations into perspective, elevations for 2007 and 2011 are also shown.

CARTERS ELEVATION

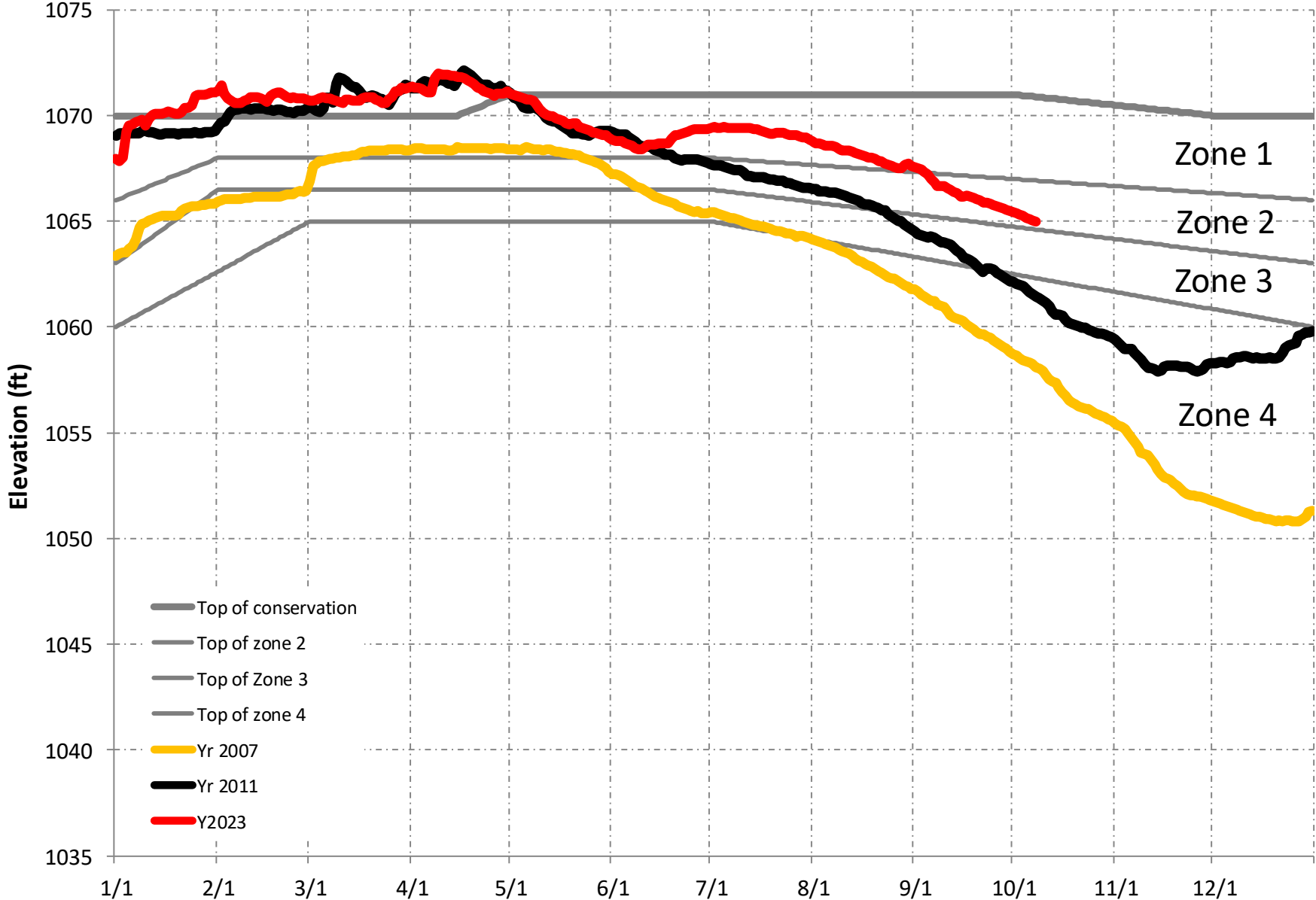


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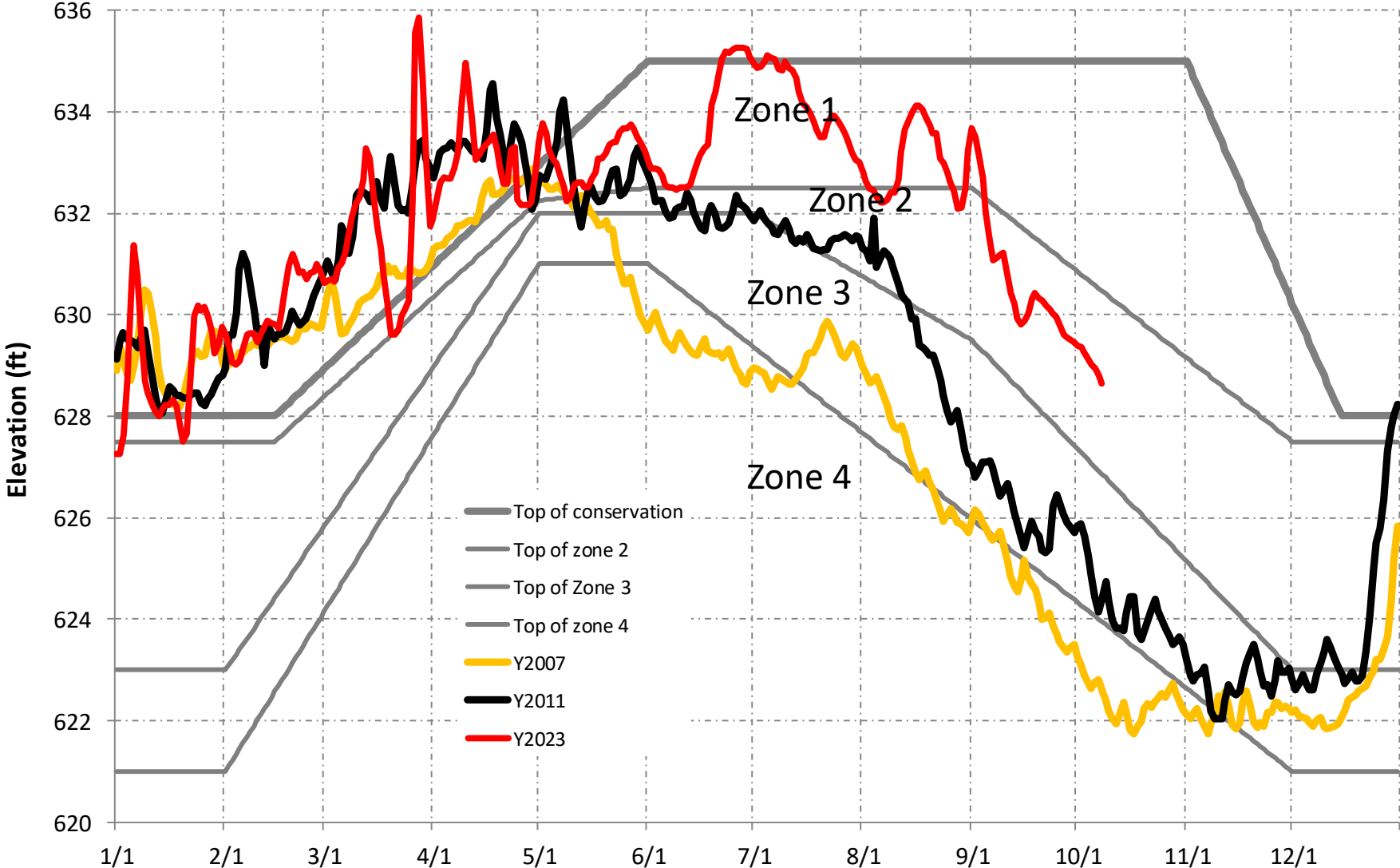
ALLATOONA ELEVATION



LAKE LANIER ELEVATION

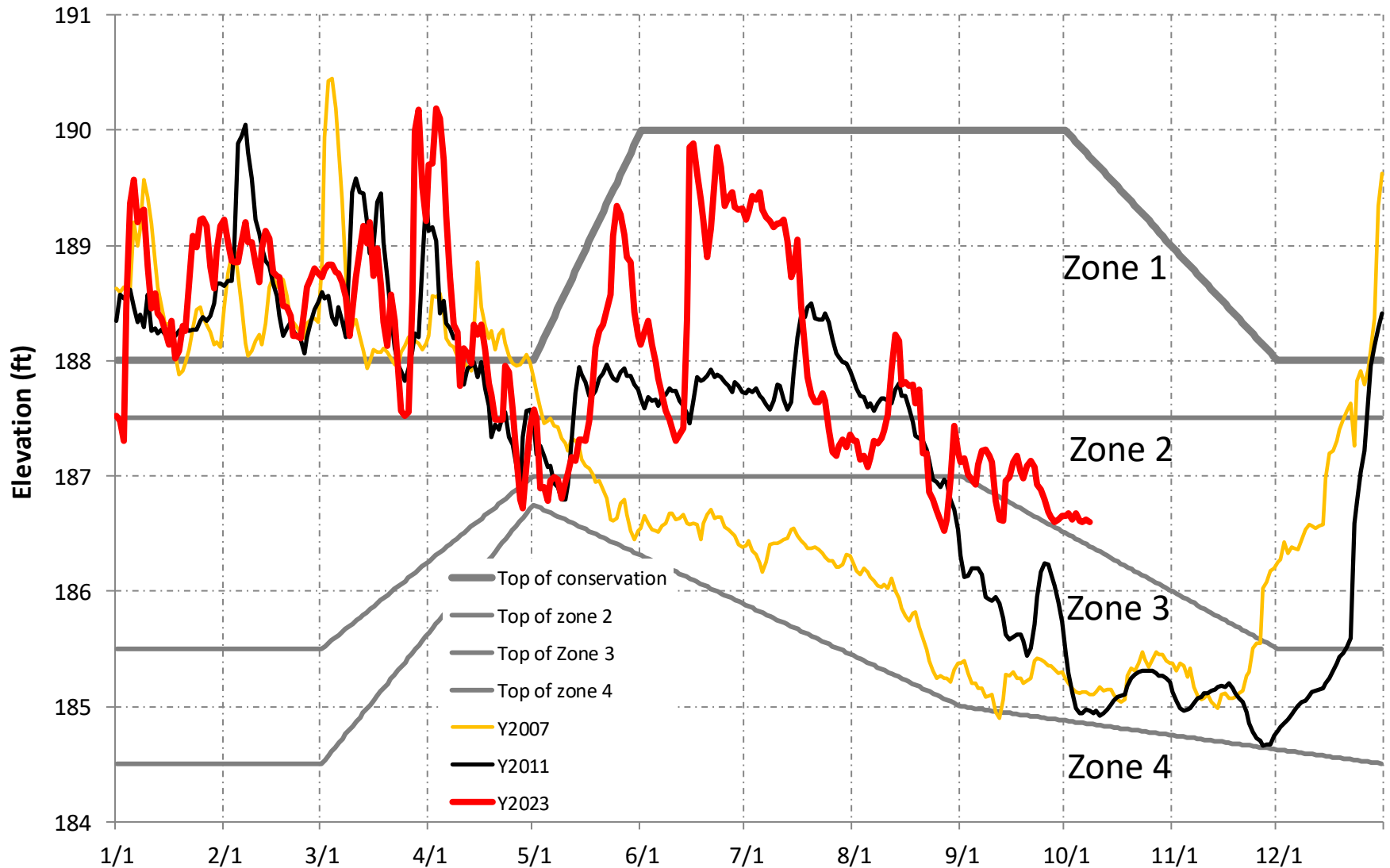


WEST POINT ELEVATION

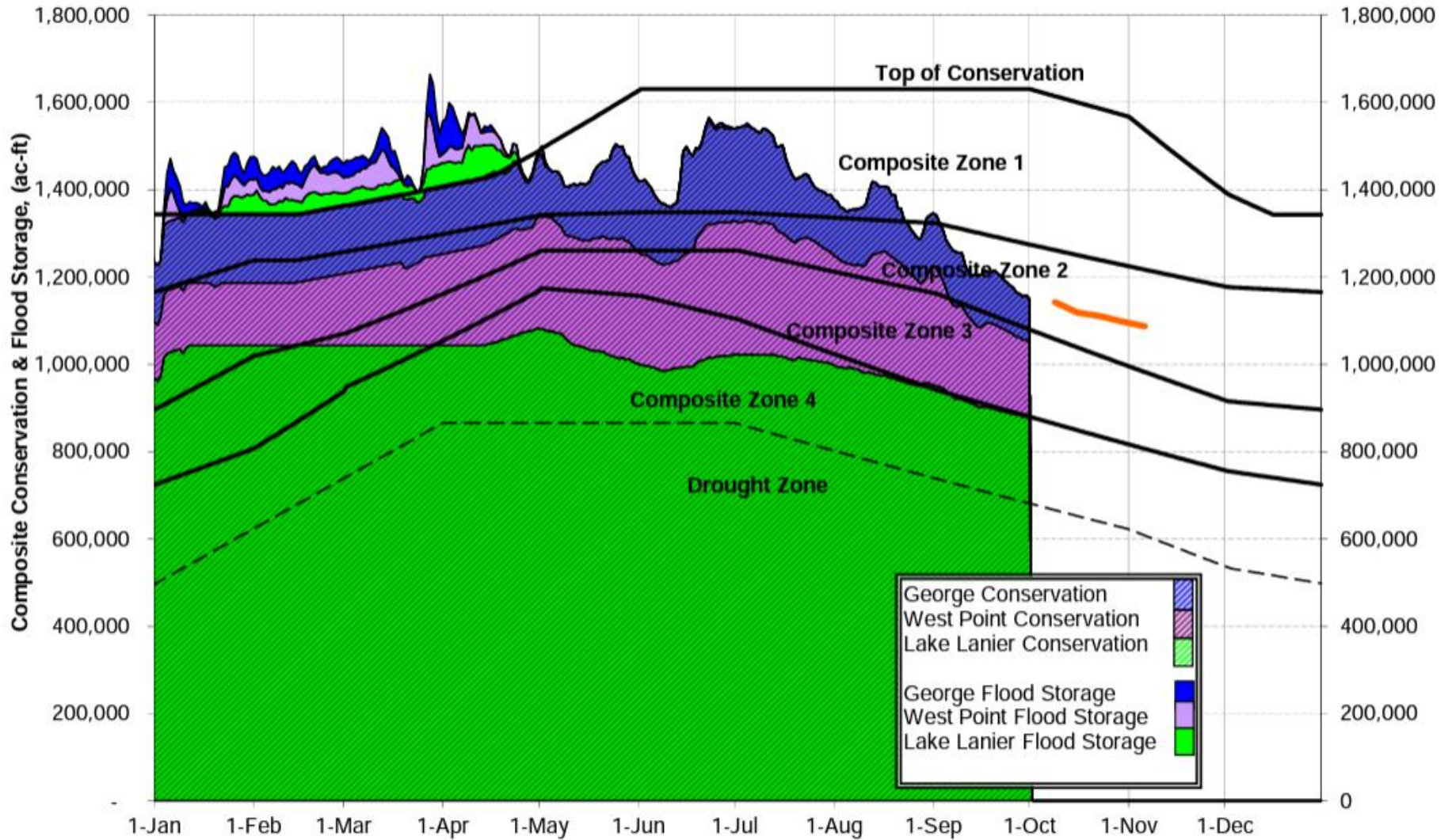


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W.F.GEORGE ELEVATION



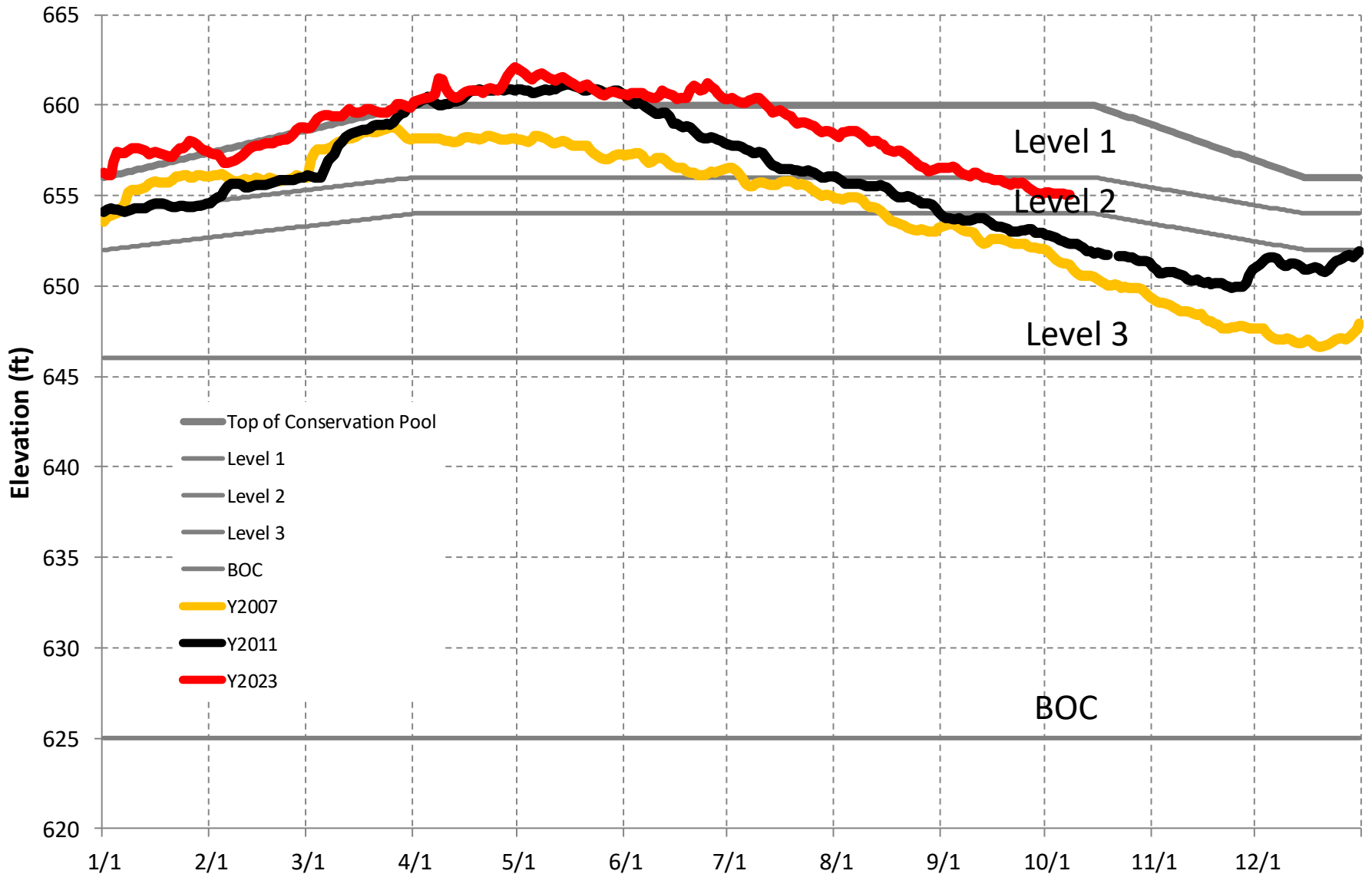
2023 ACF Basin Composite Conservation and Flood Storage



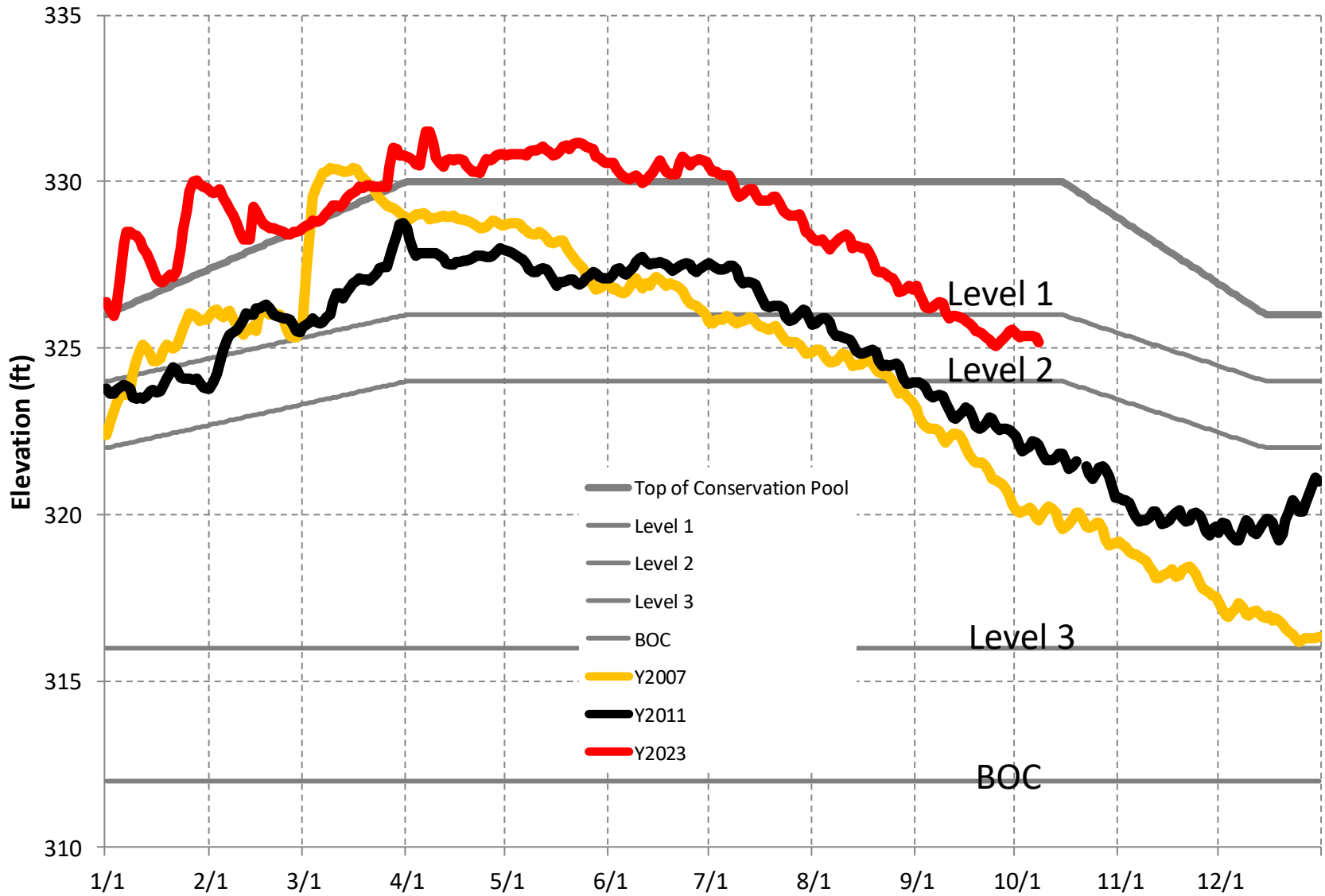
Actual data thru 10/02/2023

Add value of 1,856,000 acre-ft to include inactive storage.

LAKE HARTWELL ELEVATION



LAKE CLARKS HILL (THURMOND) ELEVATION



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Climate Prediction Center 3-month Temperature and Precipitation Probability Outlook and Seasonal Drought Outlook

Data Source:

<http://www.cpc.ncep.noaa.gov/>

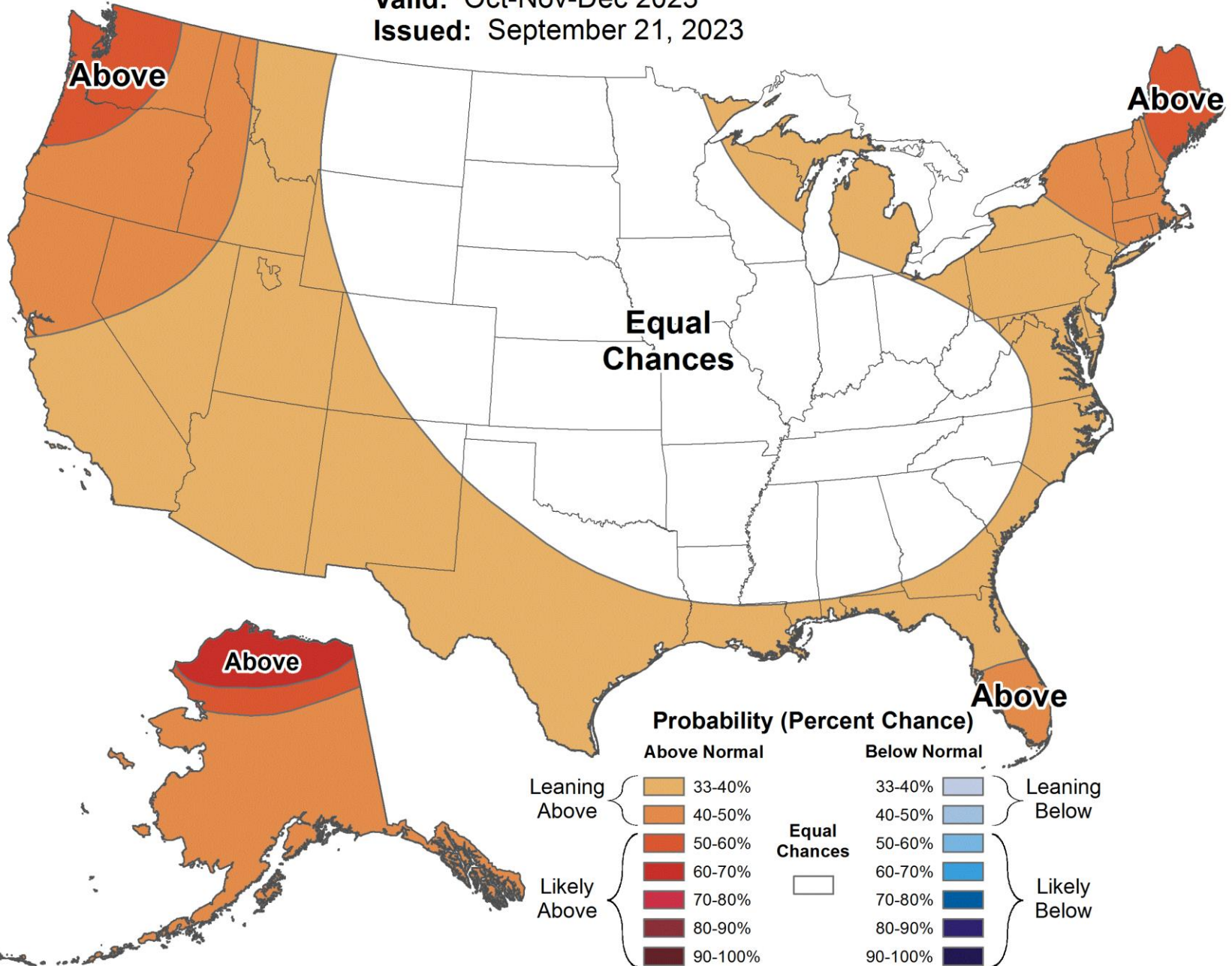


Seasonal Temperature Outlook



Valid: Oct-Nov-Dec 2023

Issued: September 21, 2023



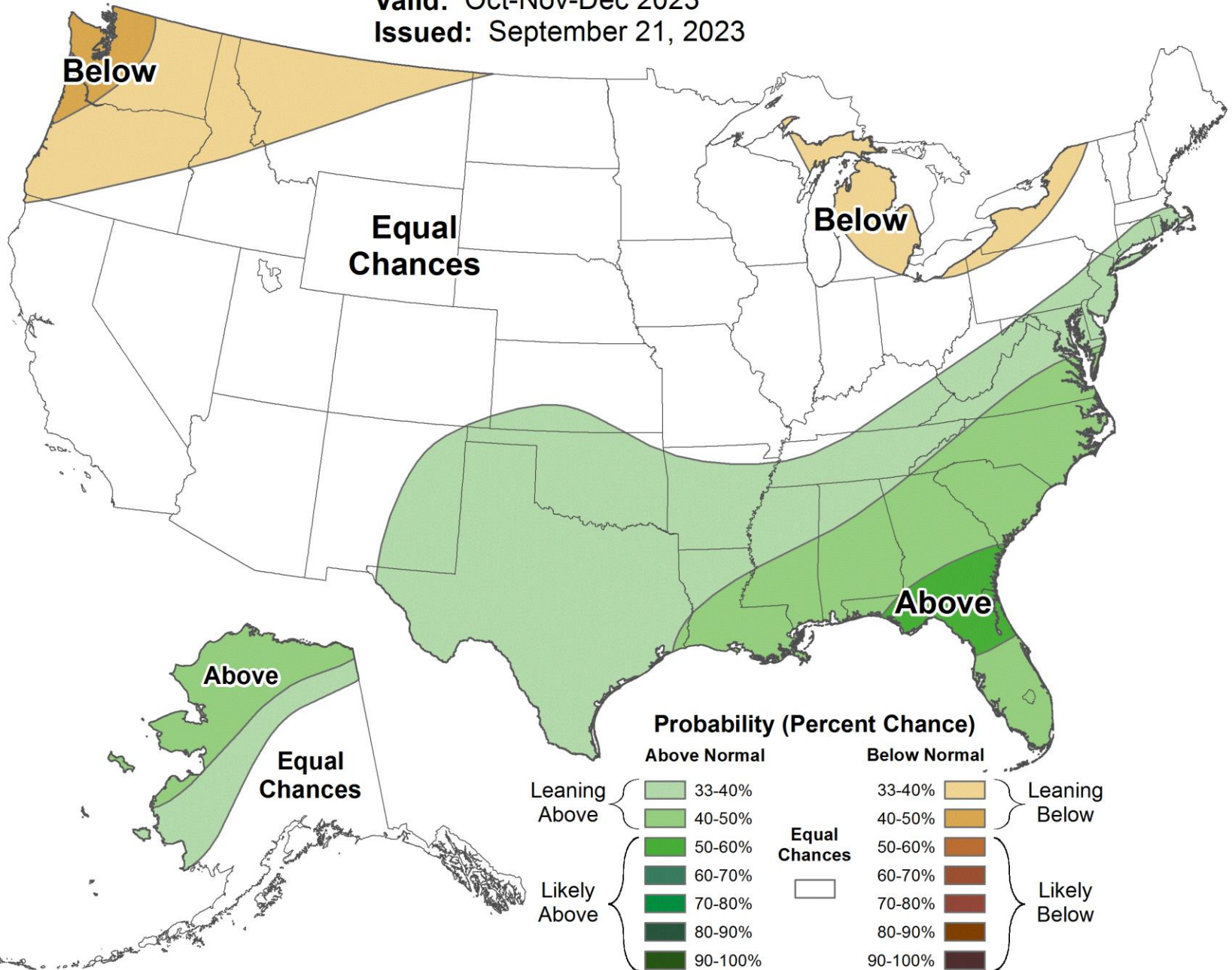


Seasonal Precipitation Outlook



Valid: Oct-Nov-Dec 2023

Issued: September 21, 2023

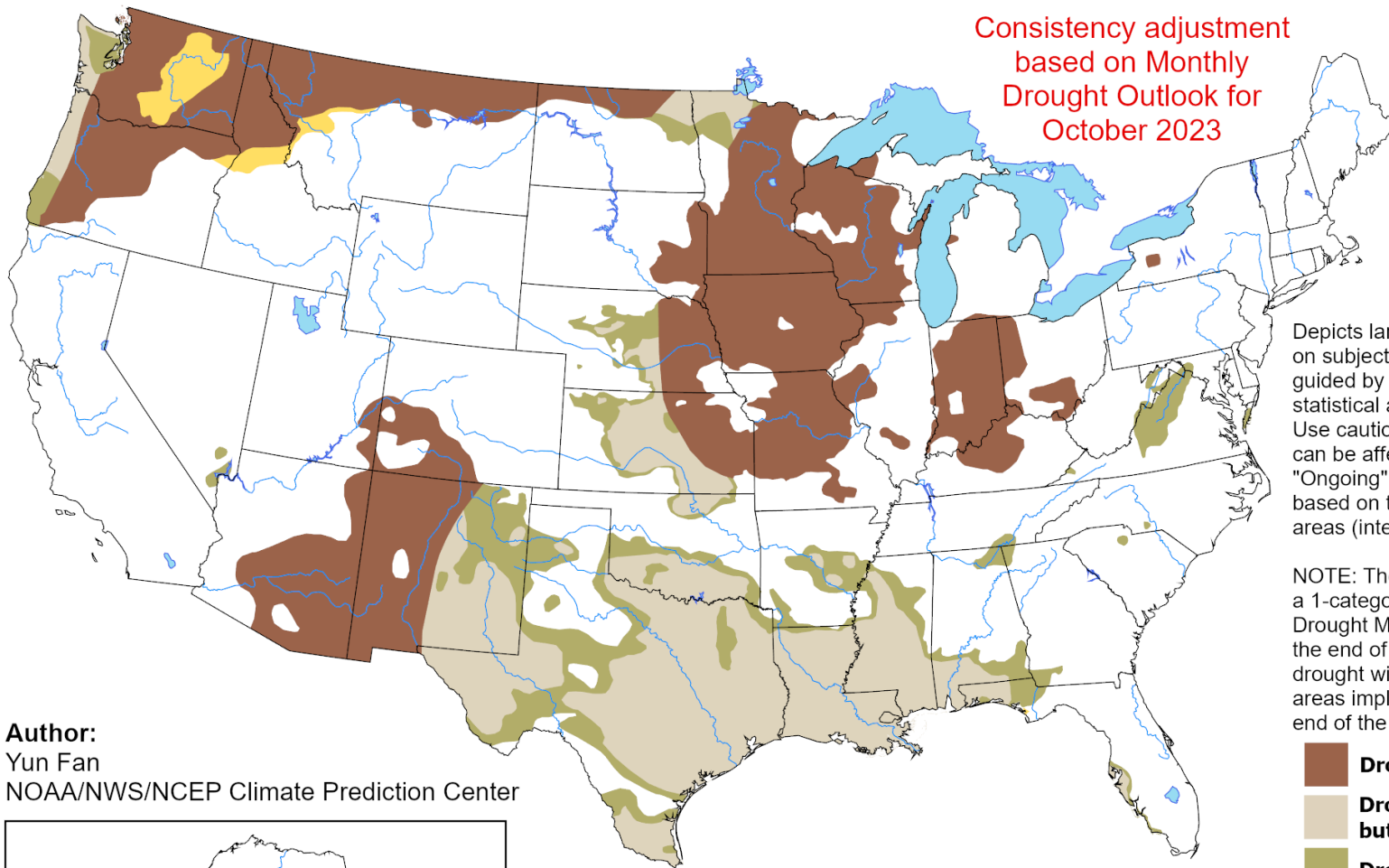


U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for October 1 - December 31, 2023
Released September 30, 2023

Consistency adjustment
based on Monthly
Drought Outlook for
October 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).

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

-  **Drought persists**
-  **Drought remains, but improves**
-  **Drought removal likely**
-  **Drought development likely**
-  **No drought**

