Drought Indicators Report

Georgia Environmental Protection Division

December 2019

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 November 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 December 5, 2019.

Drought Indicator Analysis Summary (slide 1 of 2)

- **U.S. Drought Monitor** – Drought improved significantly statewide. Different level of droughts exist in (1) a triangular area bound by I-85, I-20, and the Savannah River, and (2) an area along the southern border. Severe Drought (D2) exists in two small isolated areas, including the entirety or parts of Walton, Rockdale, Gwinnett, Dekalb, Henry, Newton and Oglethorpe counties. Moderate Drought (D1) exists in parts or entirety of 26 surrounding counties of D2 areas and 18 counties along the southern border. Abnormally dry (D0, the least intense level) exists in parts or entirety of the counties outside of D1 areas.
- **Precipitation -** Three-month precipitation is below normal statewide, except northwest corner of the state and central-eastern GA. Six-month precipitation is slightly below normal in some parts of the north-central GA and southern GA. Twelve-month precipitation is largely above normal statewide, with below normal in parts of northwest GA.
- **Soil Moisture -** Soil moisture conditions are mostly normal or above normal statewide. Some light dryness (20^{th} – 30^{th} percentiles) exists in parts of Grady and Thomas counties.

Drought Indicator Analysis Summary (slide 2 of 2)

- **Streamflow** – Compared with previous month, stream flows conditions improved significantly. Half of selected USGS gages are above normal. Fourteen gages are between the driest 20th percentile and median (two in upper-middle Chattahoochee, three in lower Flint, two in middle Ocmulgee, one in upper Oconee, one in upper Savannah and five in south GA basins). Three gages are in the driest 10th - 20th percentiles (each in upper, lower Ocmulgee and lower Oconee basins).
- **Groundwater Level** – Compared with previous month, groundwater levels improved in some degrees. Seven selected wells are above normal. Eight wells are between the lowest 20th percentile and median. One well is in the lowest 5th -10th percentiles and one well is below the lowest 5th percentile (all in Floridan Aquifer system in south GA).
- **Reservoir Levels** – In November 2019, most federal reservoir conditions in Georgia (ACF, ACT, and Savannah River Basins) improved. Carters, Allatoona, West Point and WF George are near or above their respective top of conservation (normal) pools. Lanier is in Zone 1. Hartwell also improved but still is lower than normal level (above Level 1 drought trigger). Thurmond still slightly below its Level 1 drought trigger.
- **Short-term Climate Prediction** - National Climatic Prediction Center projects above normal temperature and equal chance of precipitation statewide in December 2019 – February 2020. U.S. Drought Outlook predicts drought removal likely in most parts of current D2, D1 and D0 areas in late November 2019 – February 2020.
- **Water Supplies** – 103 counties are currently under Drought Response Level 1. EPD has granted Drought Response Level 2 (DRL2) Variances to City of Griffin, Coweta County, City of Forsyth, City of Senoia and Fayette County until December 31, 2019.

US Drought Monitor

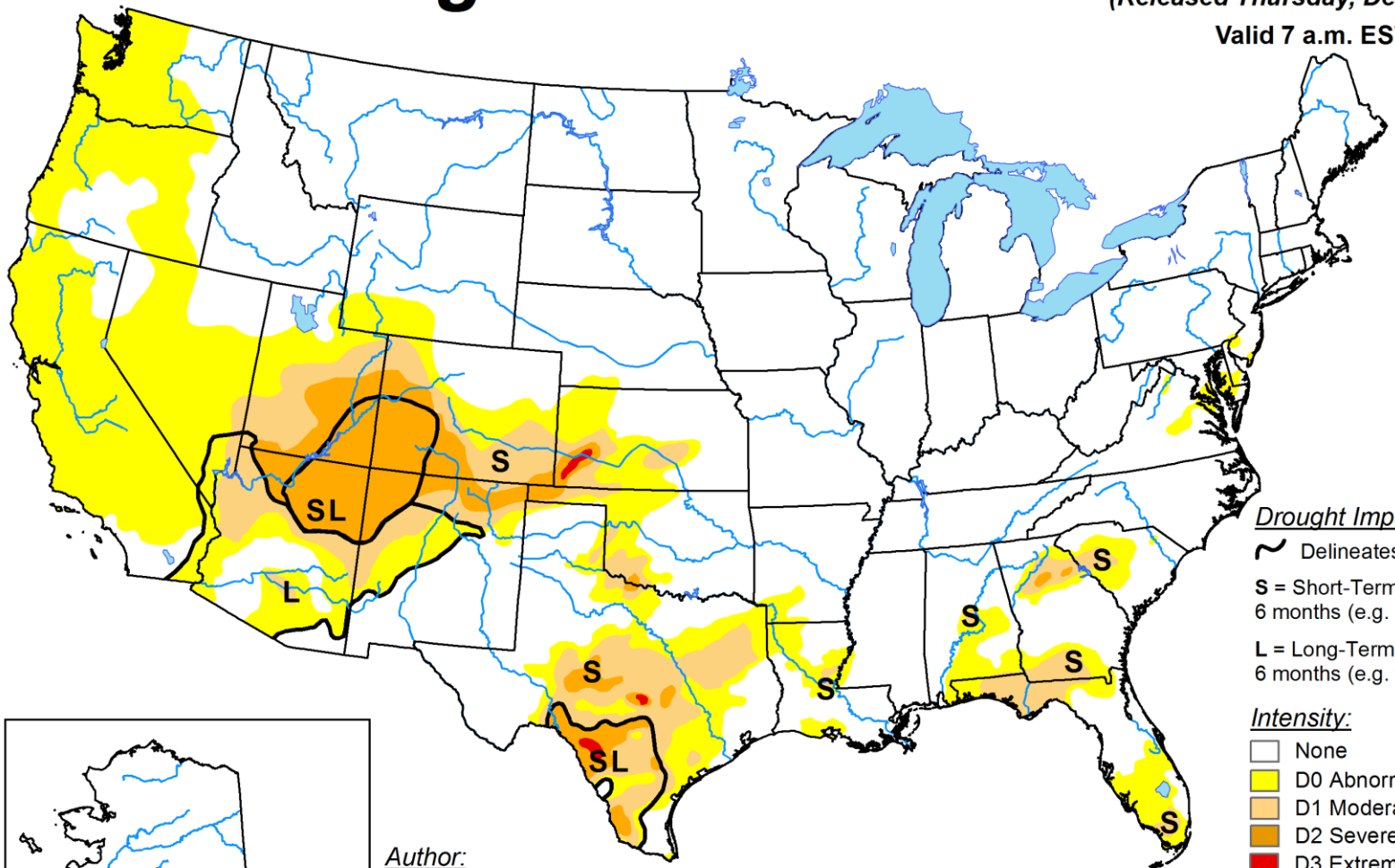
Data Source:
http://droughtmonitor.unl.edu/

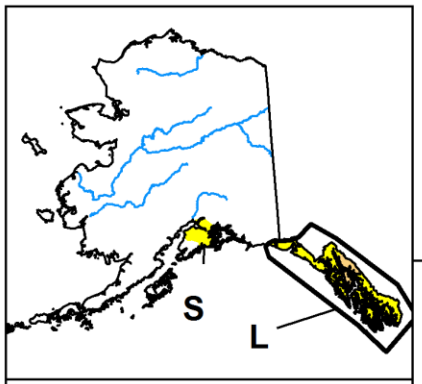
U.S. Drought Monitor

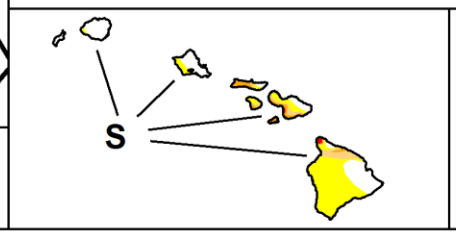
December 3, 2019

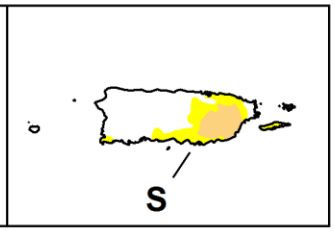
(Released Thursday, Dec. 5, 2019)

Valid 7 a.m. EST









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:

Deborah Bathke

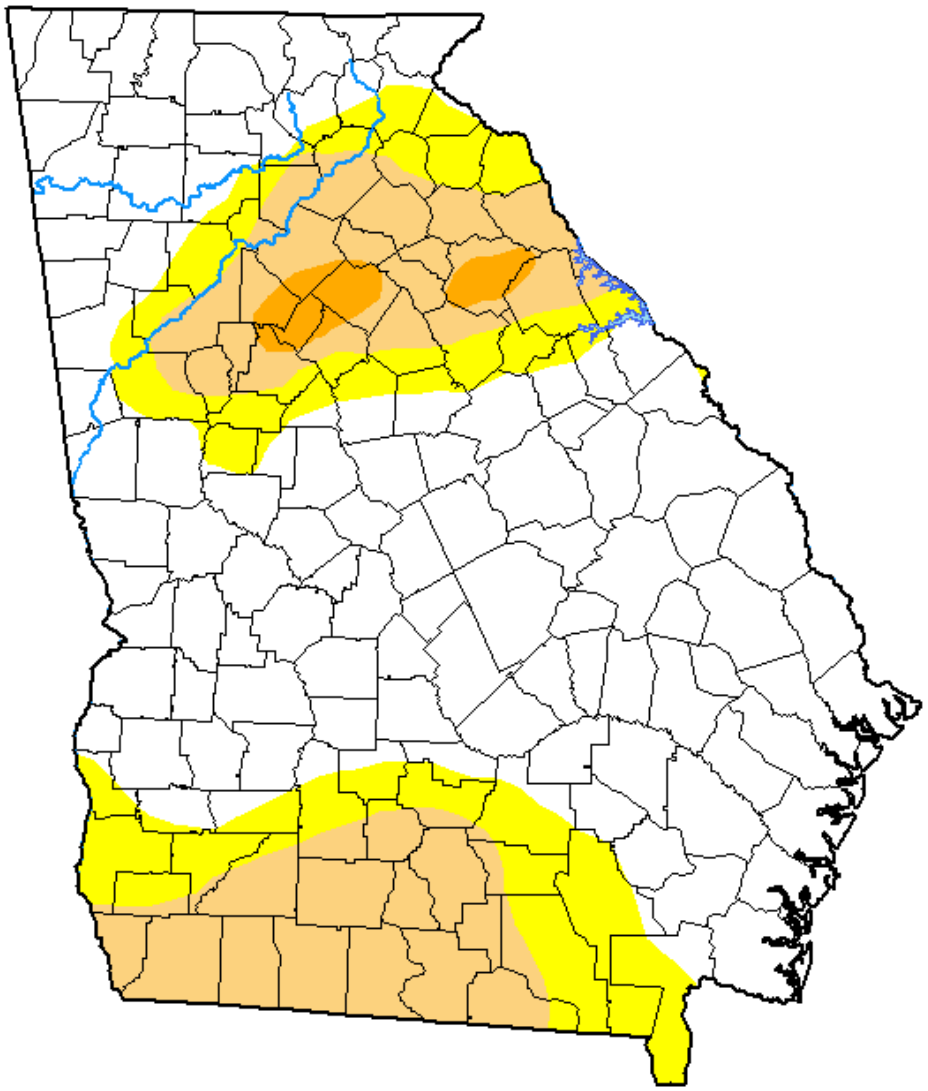
National Drought Mitigation Center

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

USDA NDMC NOAA

droughtmonitor.unl.edu

U.S. Drought Monitor
Georgia



December 3, 2019
(Released Thursday, Dec. 5, 2019)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	63.17	36.83	20.34	1.68	0.00	0.00
Last Week *11-26-2019*	55.92	44.08	23.08	2.20	0.00	0.00
3 Months Ago *09-03-2019*	72.08	27.92	7.27	0.00	0.00	0.00
Start of Calendar Year *01-01-2019*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year *10-01-2019*	0.00	100.00	61.58	28.35	4.49	0.00
One Year Ago *12-04-2018*	97.72	2.28	0.00	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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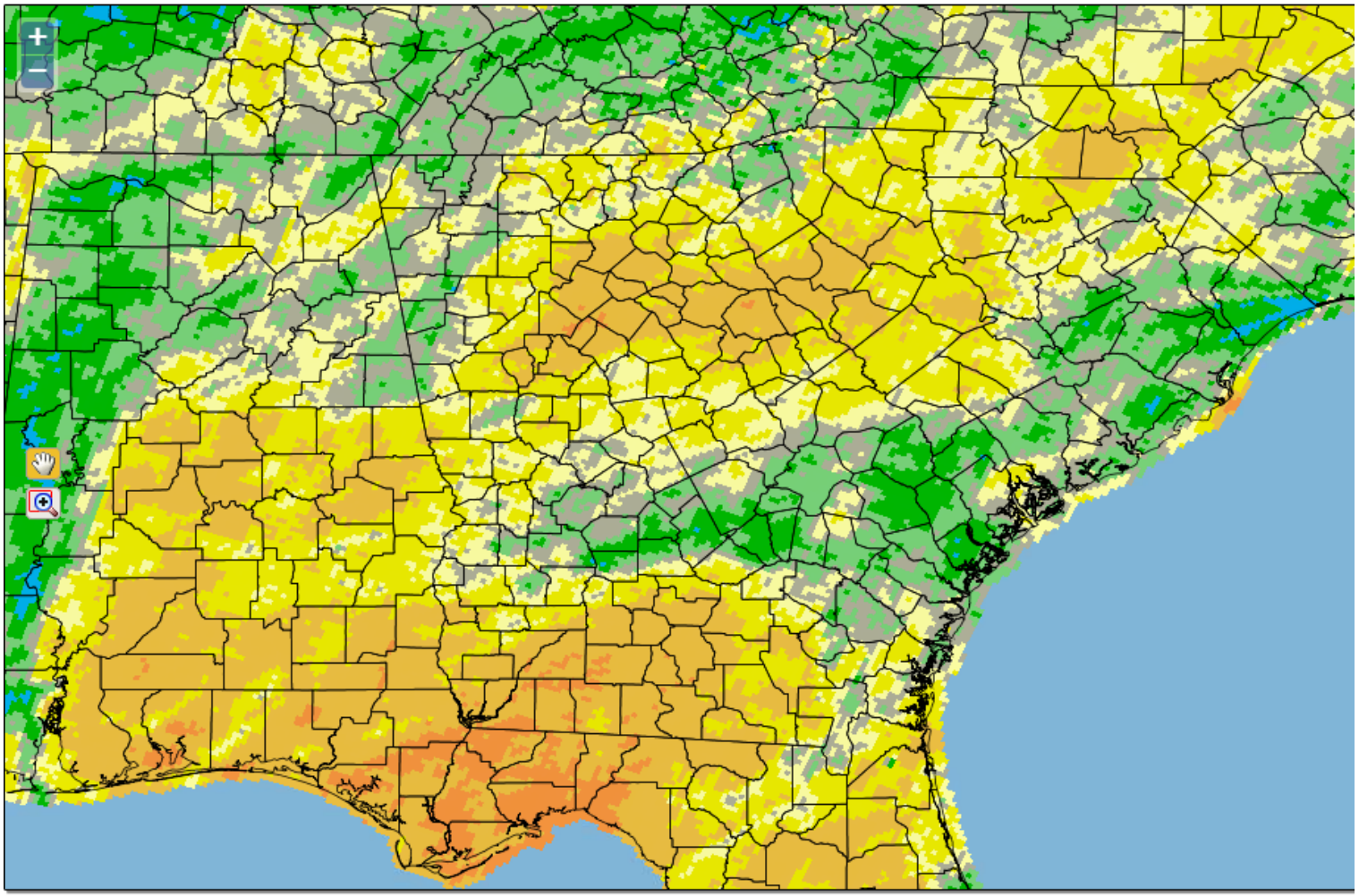
Deborah Bathke
National Drought Mitigation Center

droughtmonitor.unl.edu

3, 6, and 12 Month Percent of Normal Precipitation

Data Source:
http://climate.ncsu.edu/drought/map

3 Month Percent of Normal Precipitation



90 day Percent of Normal Precipitation for December 02, 2019

0 5 10 25 50 75 90 100 110 125 150 200 300 400 600 %

Transparency:

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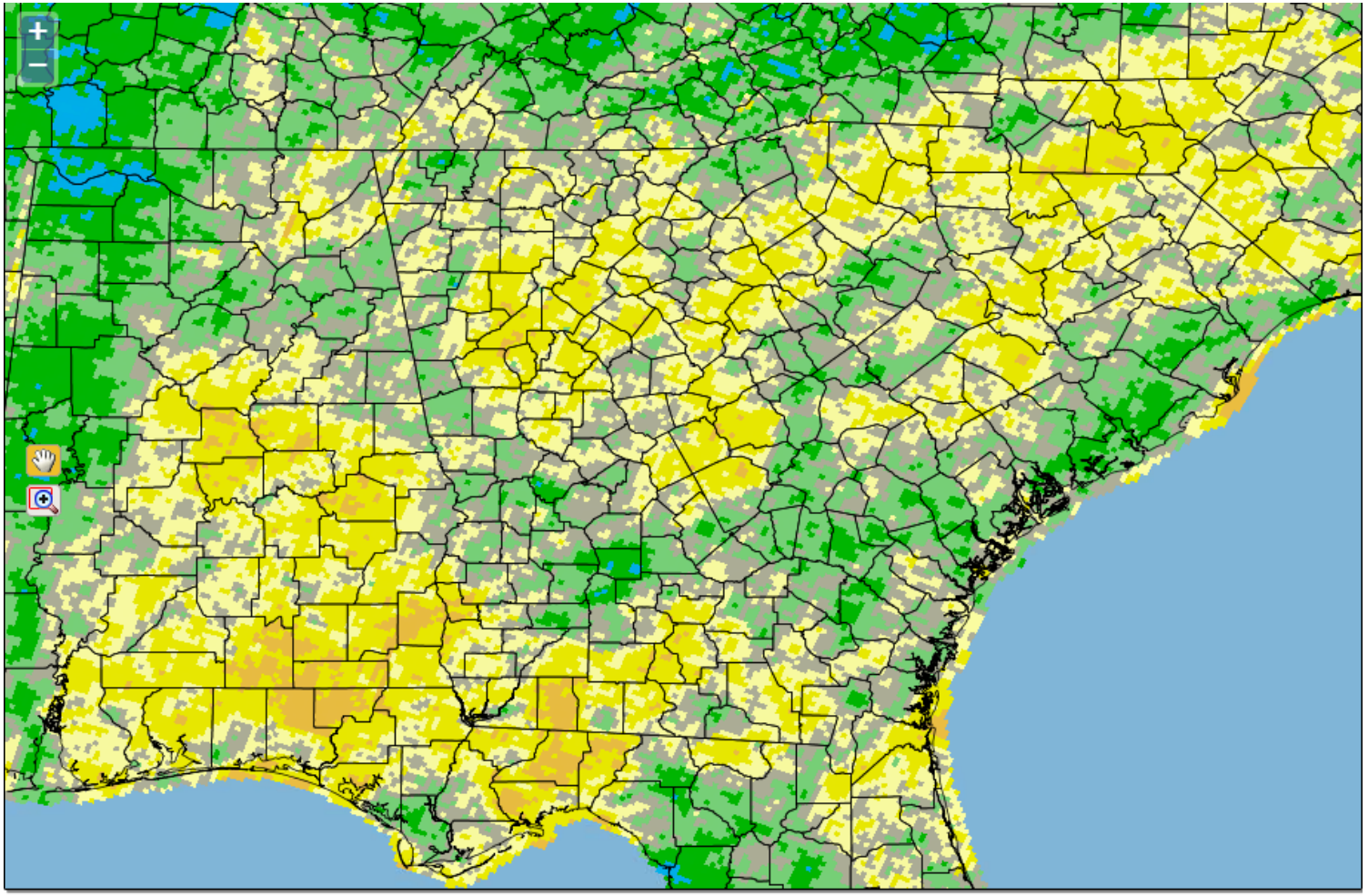
6 Month Percent of Normal Precipitation



6 month Percent of Normal Precipitation for December 02, 2019

0 5 10 25 50 75 90 100 110 125 150 200 300 400 600 %

Transparency:

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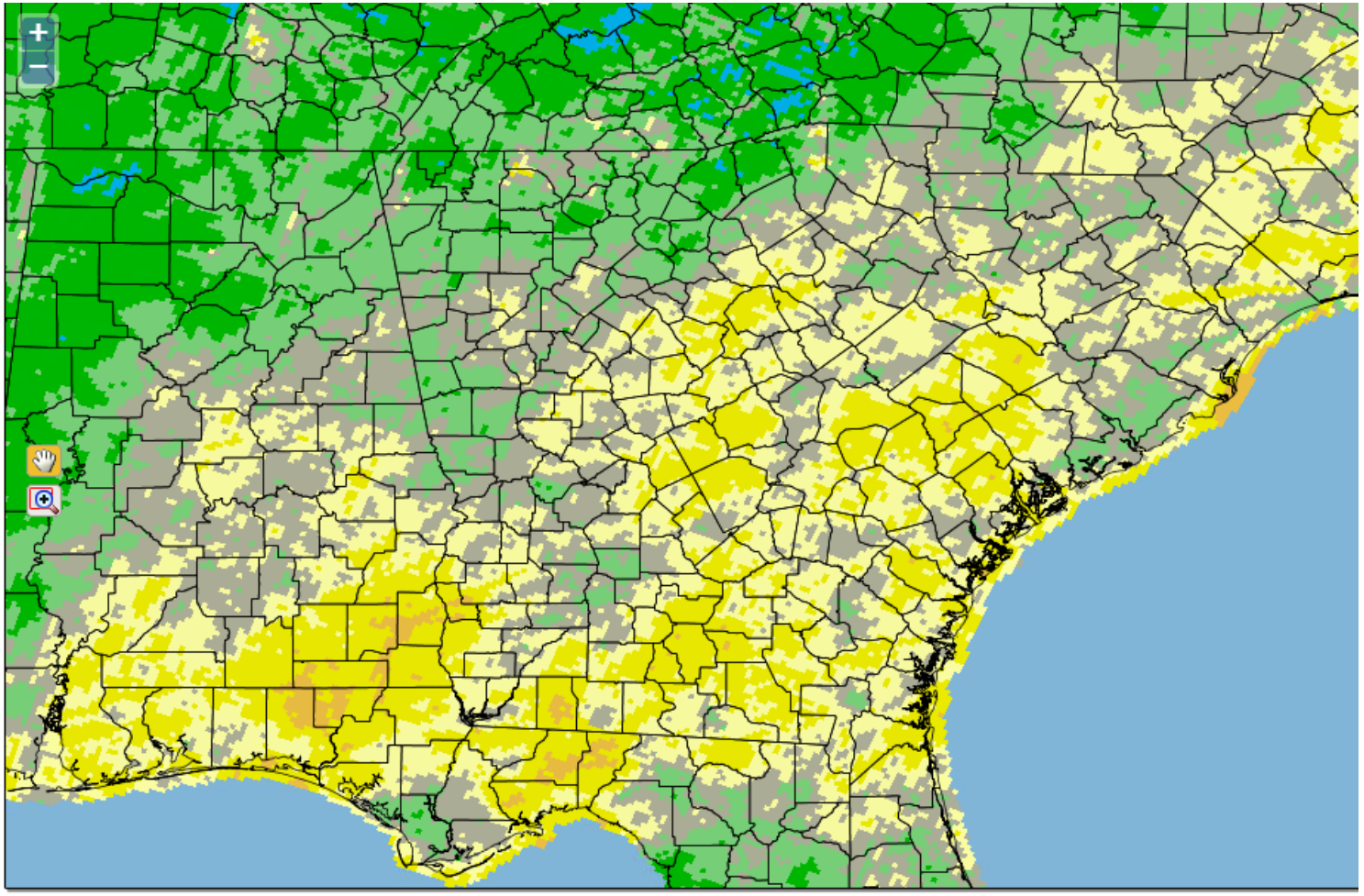
12 Month Percent of Normal Precipitation



12 month Percent of Normal Precipitation for December 03, 2019

0 5 10 25 50 75 90 100 110 125 150 200 300 400 600 %

Transparency:

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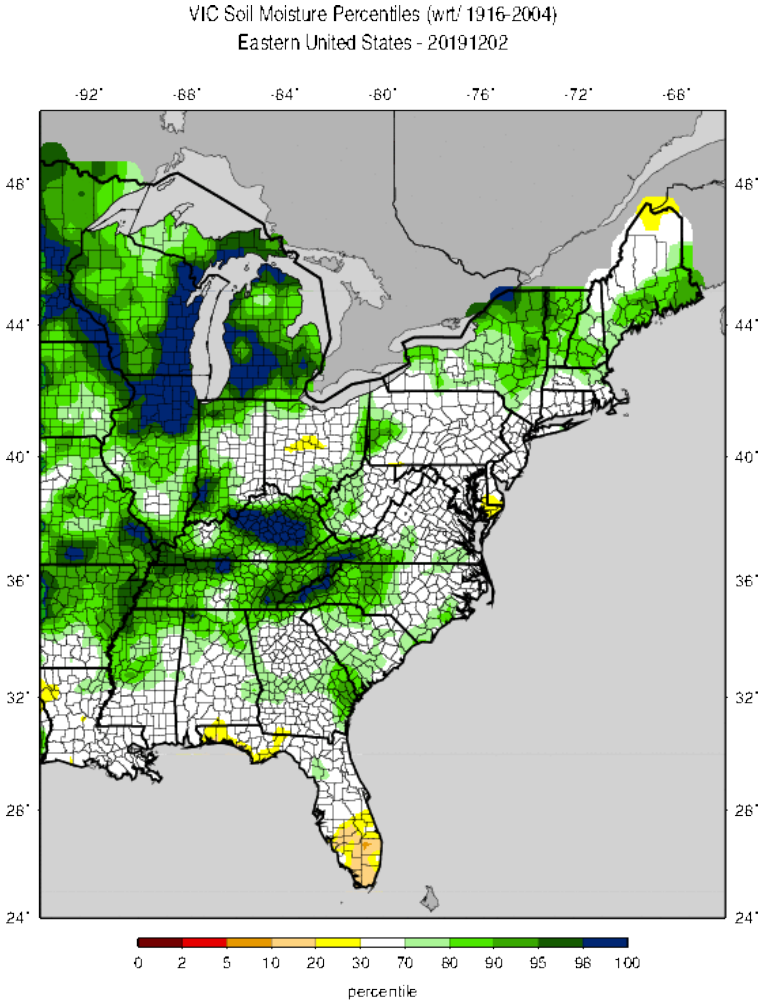
Soil Moisture Conditions

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



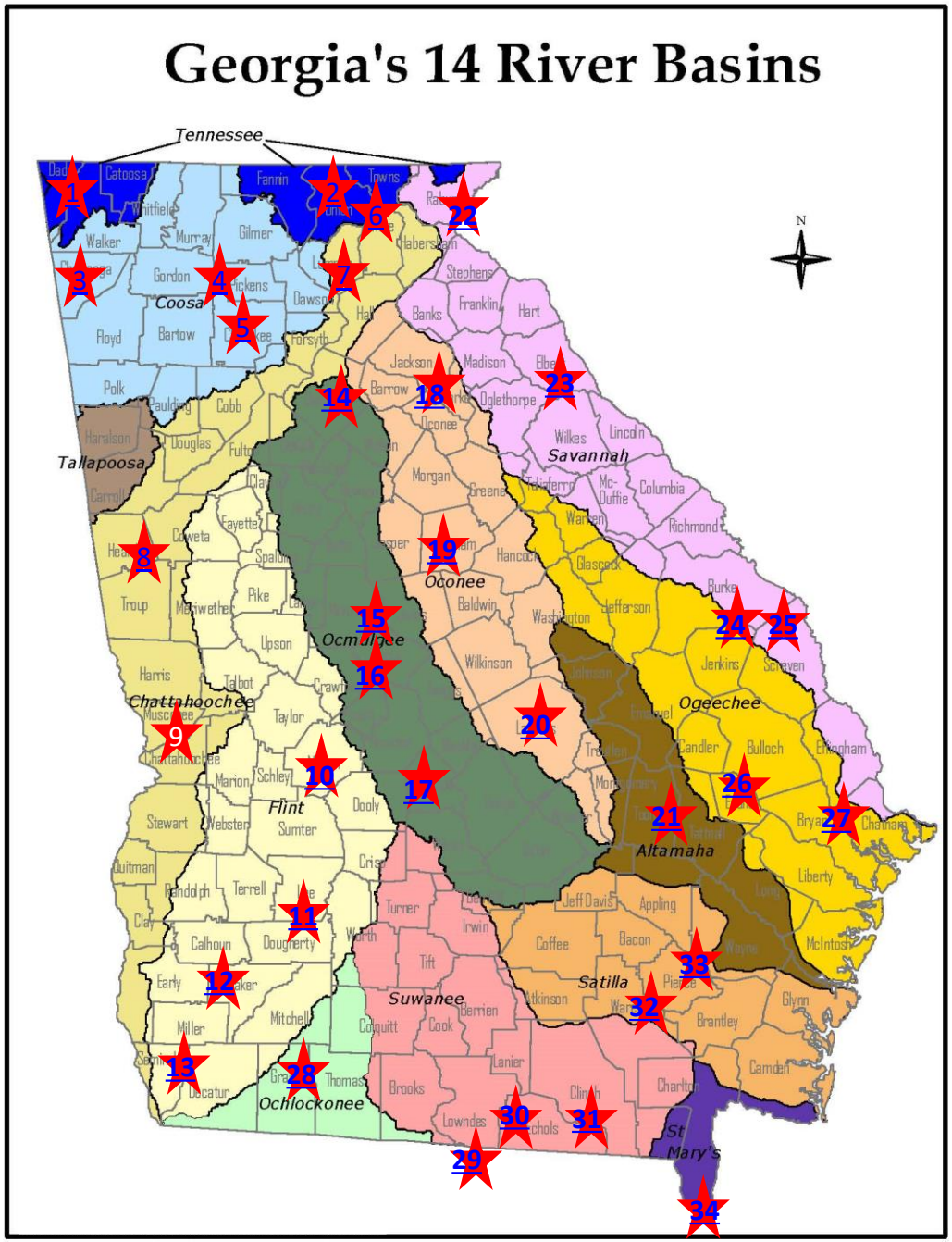
Current (daily updated) percentiles for soil moisture (SWE) with respect to the climatological period (1916-2004).

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



USGS Stream Gages Monitored by EPD to Assess Drought Conditions

GAGE#	BASIN	GAGE NAME
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	OHOOPEE 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	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 2019 through November 2019;
- 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 :

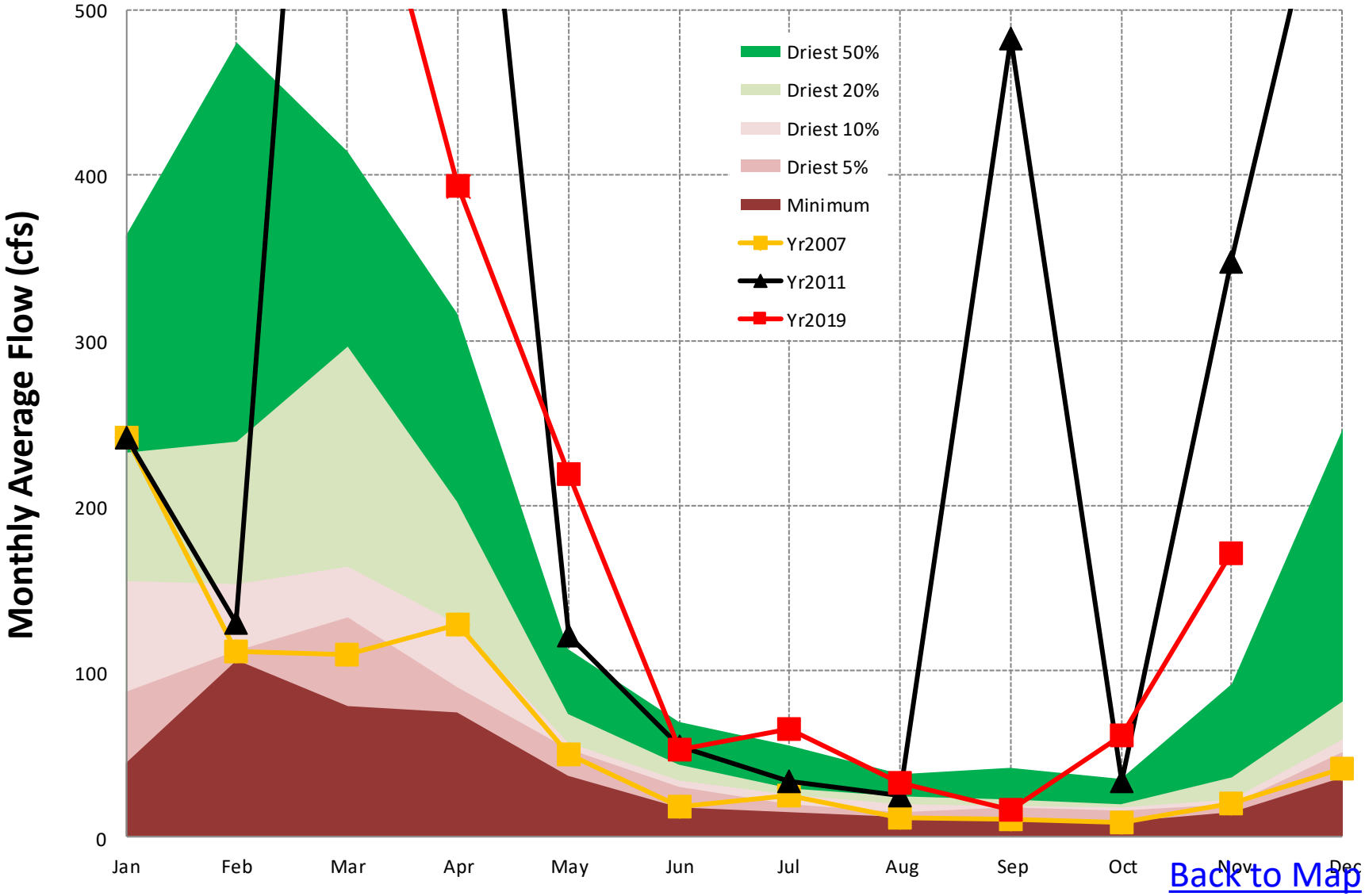
- Average stream flow for November 2019 was 741 cfs. The statistical composite of all historical data for this gage shows that average streamflow in November has historically been lower than November 2019 about 58% of the time; about 42% of the time in November it has been higher.
- Average stream flow in November 2011 was 461 cfs. The statistical composite of all historical data for this gage shows that average streamflow in November has historically been lower than November 2011 only 15-20% of the time; 80-85% of the time in November it has been higher.
- Average stream flow in November 2007 was 197 cfs. The statistical composite of all historical data for this gage shows that average streamflow in November has historically been lower than November 2007 only 1% of the time; 99% of the time in November 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:

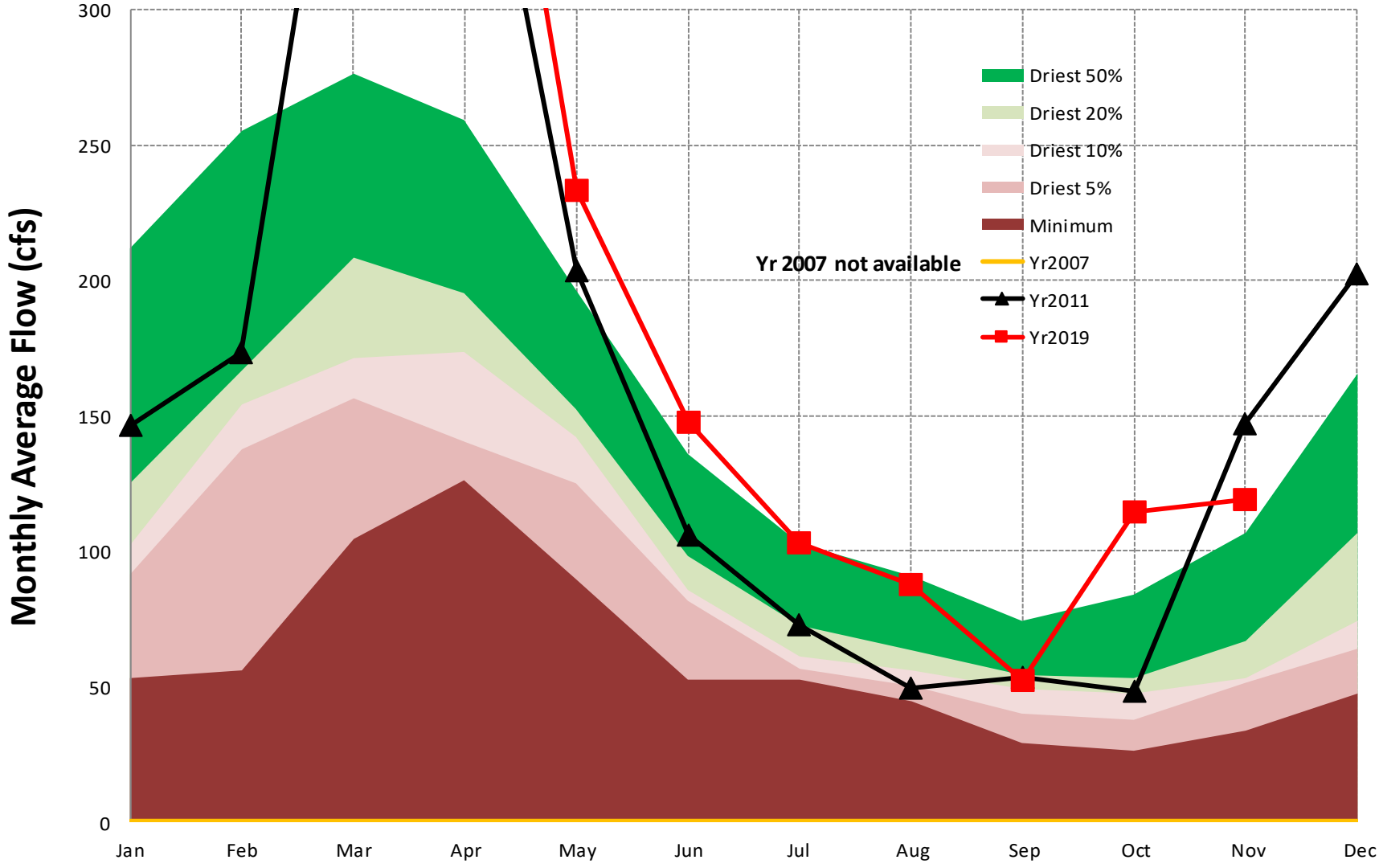
- Average stream flow for November 2019 was 2,658 cfs. The statistical composite of all historical data for this gage shows that average streamflow in November has historically been lower than November 2019 about 43% of the time; about 57% of the time in November it has been higher.
- Average stream flow in November 2011 was 1,171 cfs. The statistical composite of all historical data for this gage shows that average streamflow in November has historically been lower than November 2011 about 1-2% of the time; about 98-99% of the time in November it has been higher.
- Average stream flow in November 2007 was 1,119 cfs. The statistical composite of all historical data for this gage shows that average streamflow in November has historically been lower than November 2007 about 1% of the time; about 99% of the time in November it has been higher.

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



Back to Map

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



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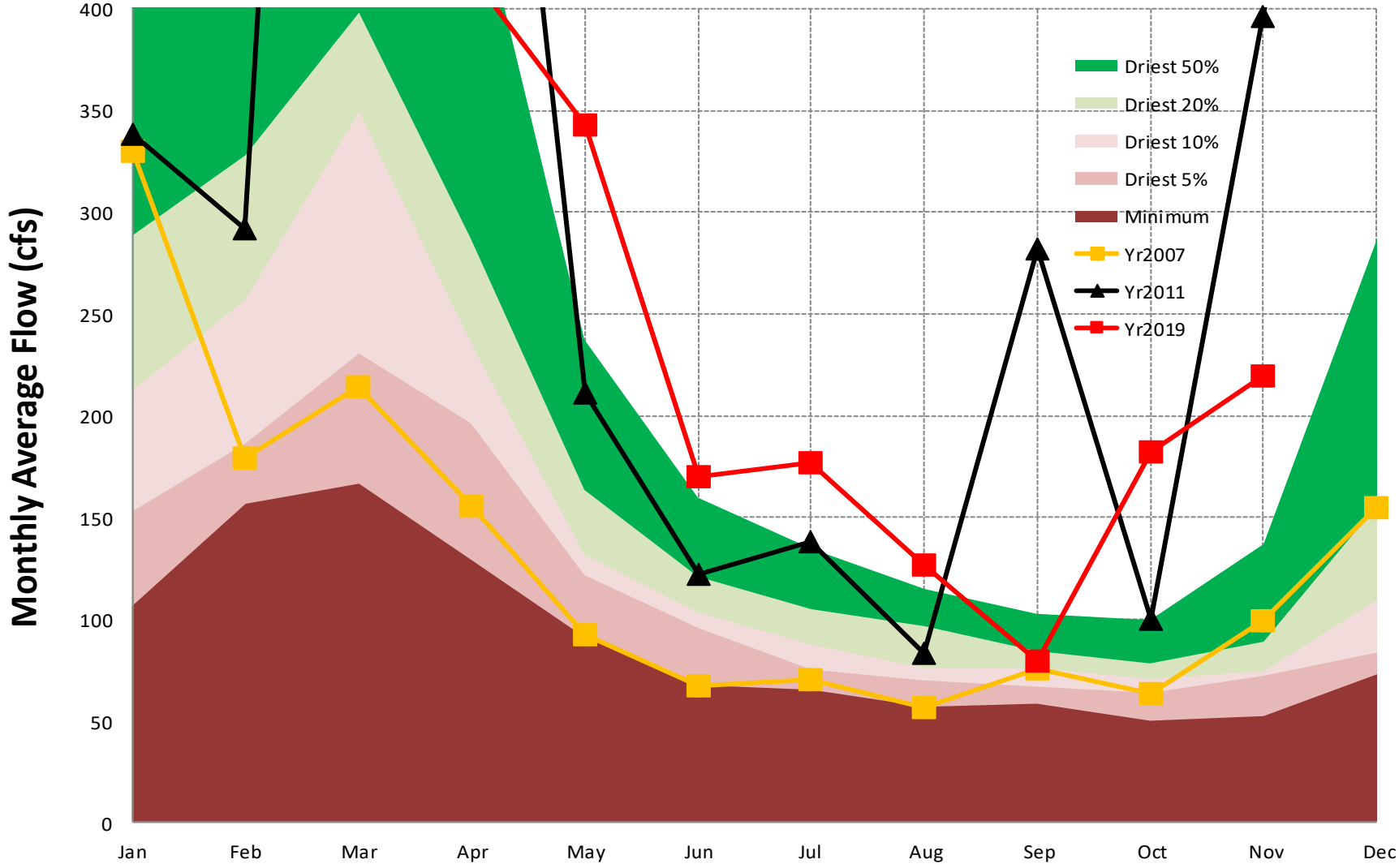
Gage #3. USGS #02398000, Coosa Basin, Chattooga River at Summerville, GA



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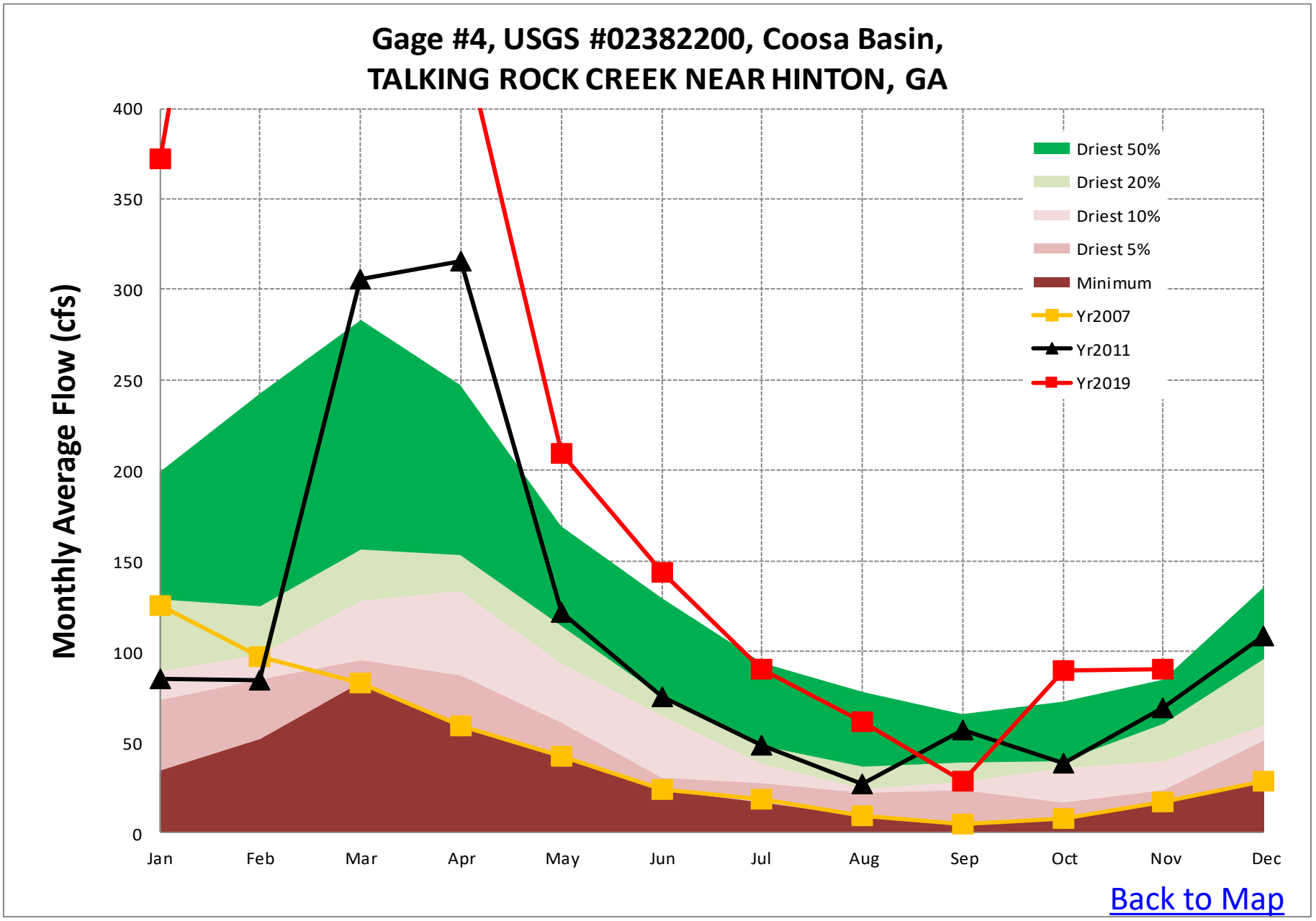
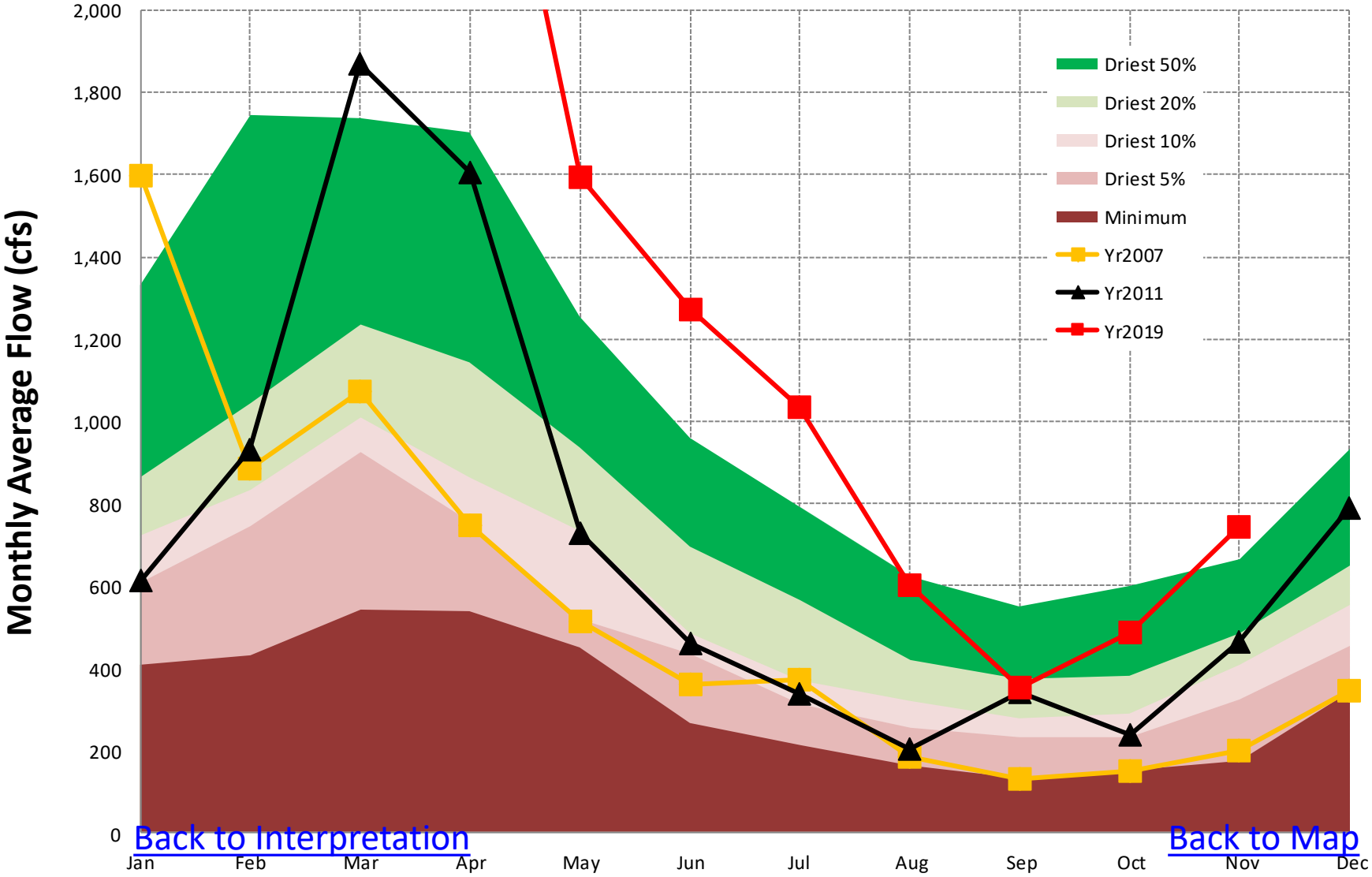

Gage #4, USGS #02382200, Coosa Basin,
TALKING ROCK CREEK NEAR HINTON, GA
Monthly Average Flow (cfs)
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2019

Back to Map

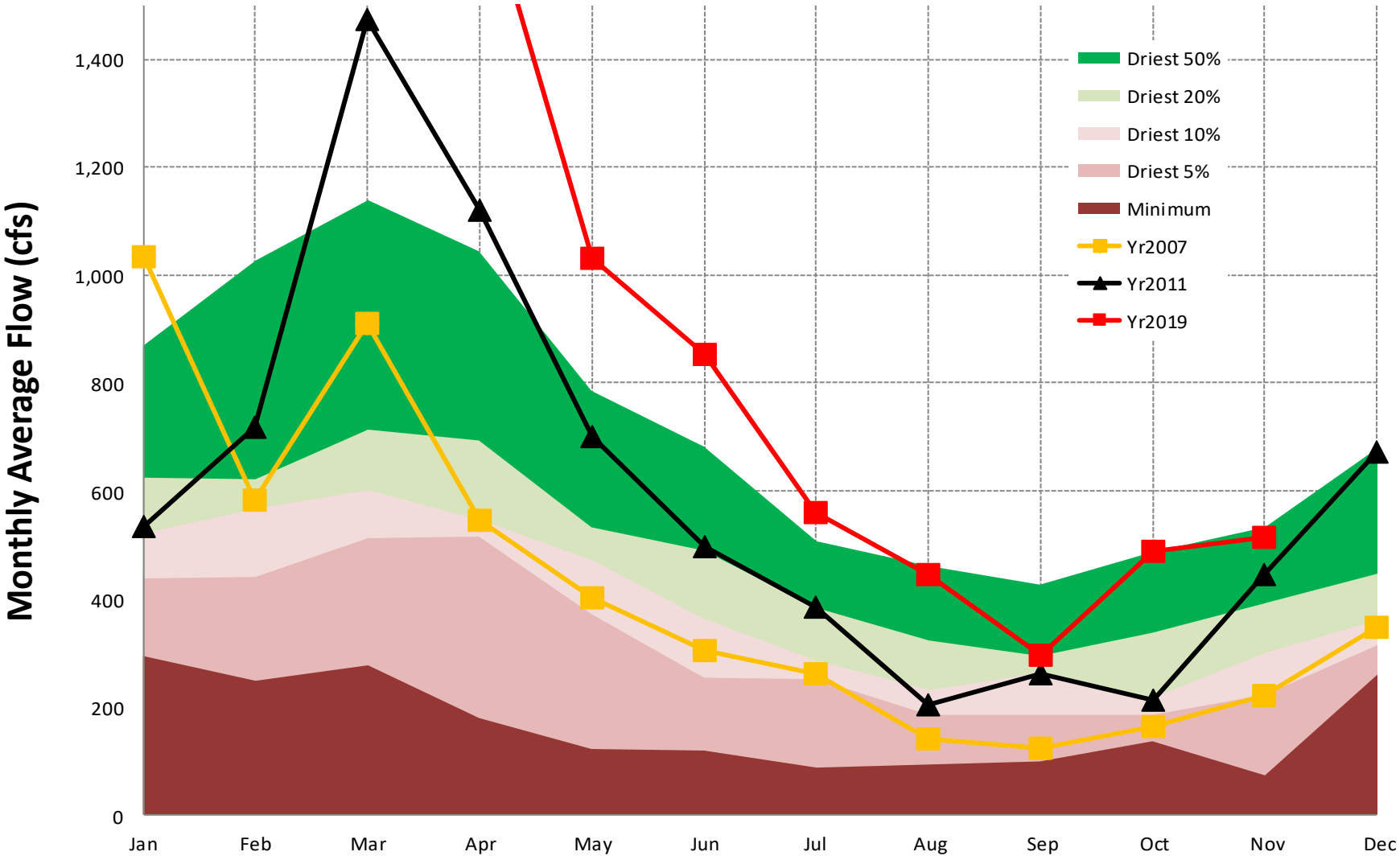
Gage #5, USGS #02392000, Coosa Basin, Etowah River at Canton, GA



Back to Interpretation

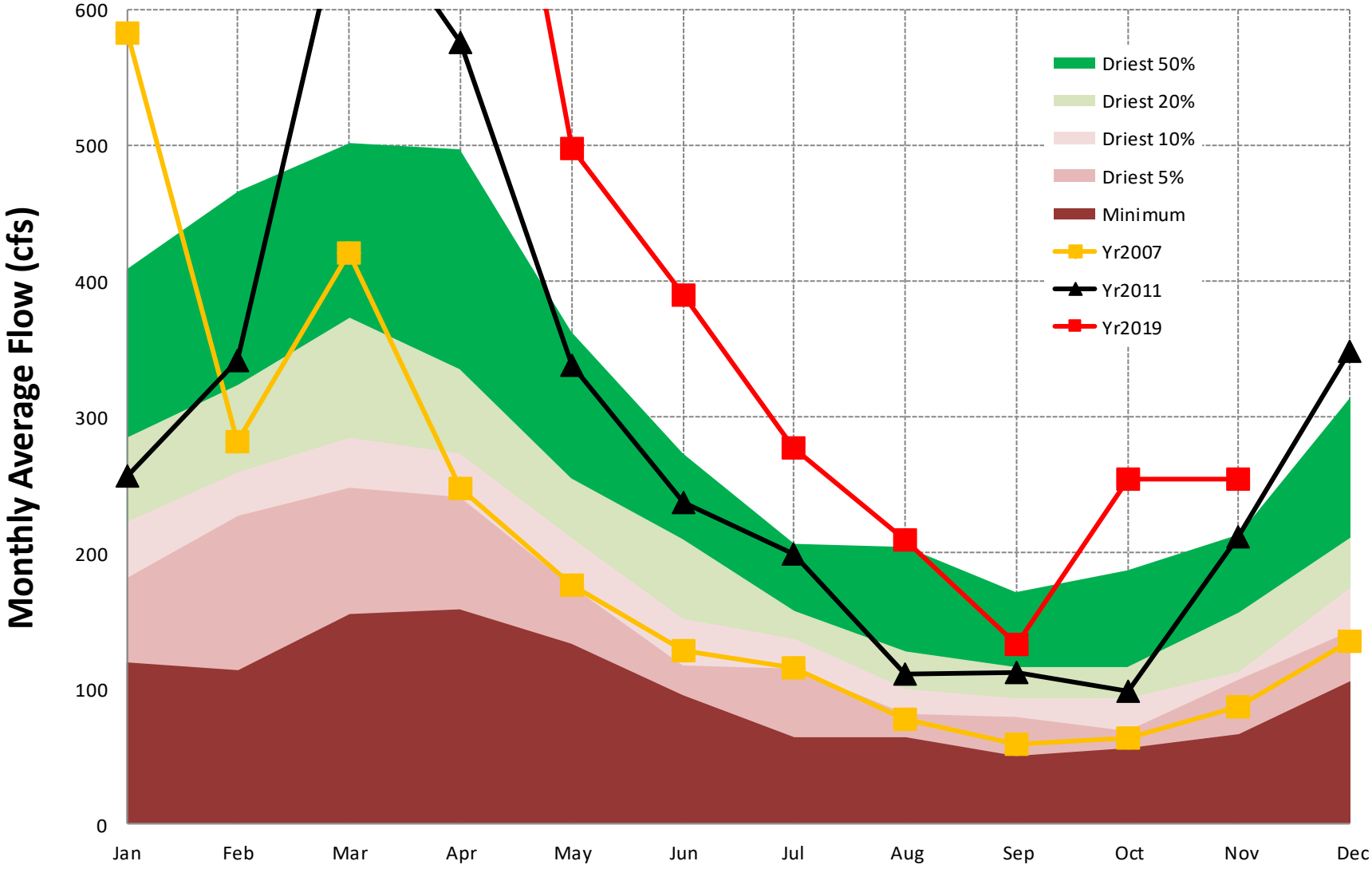
Back to Map

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



Back to Map

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



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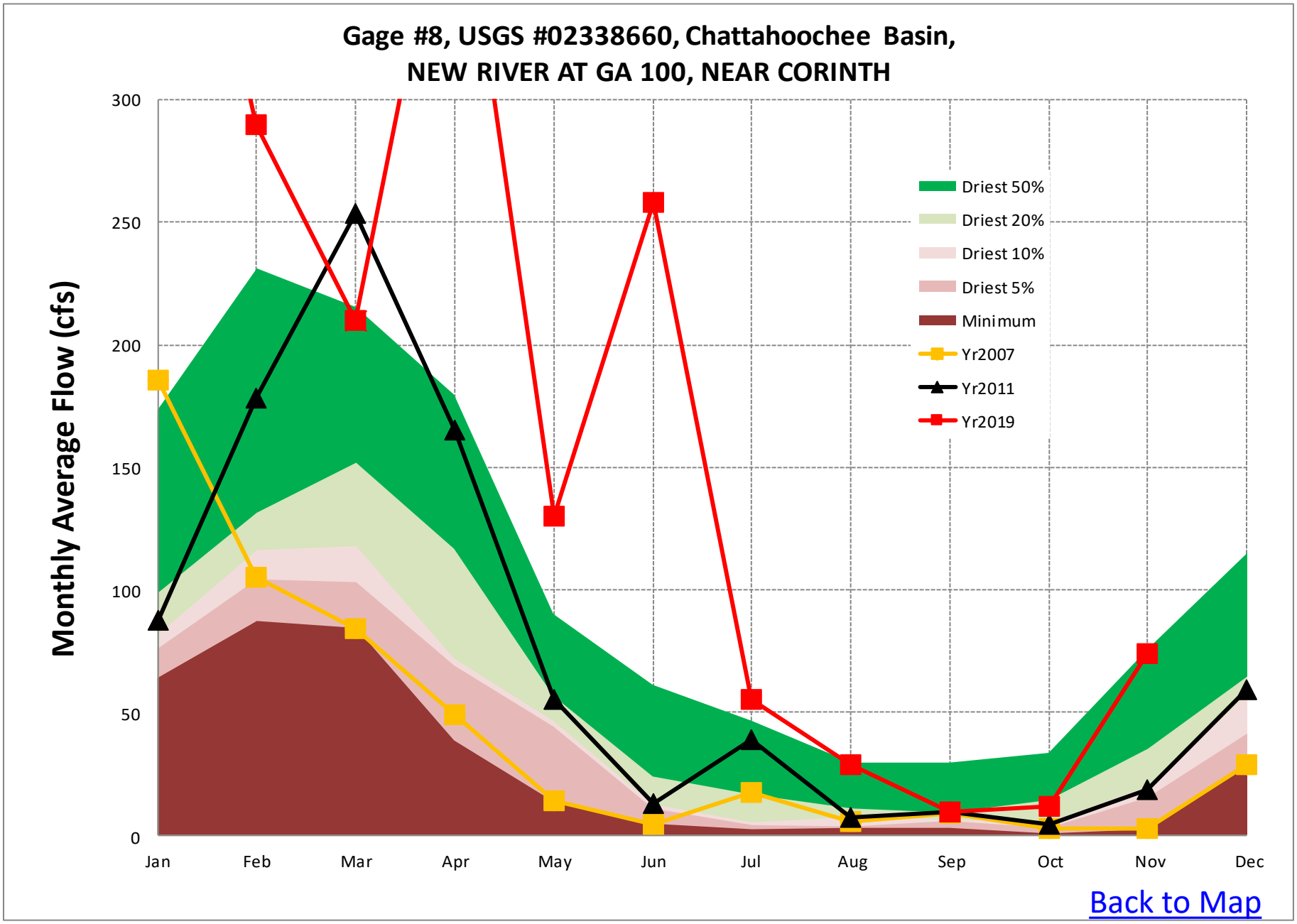
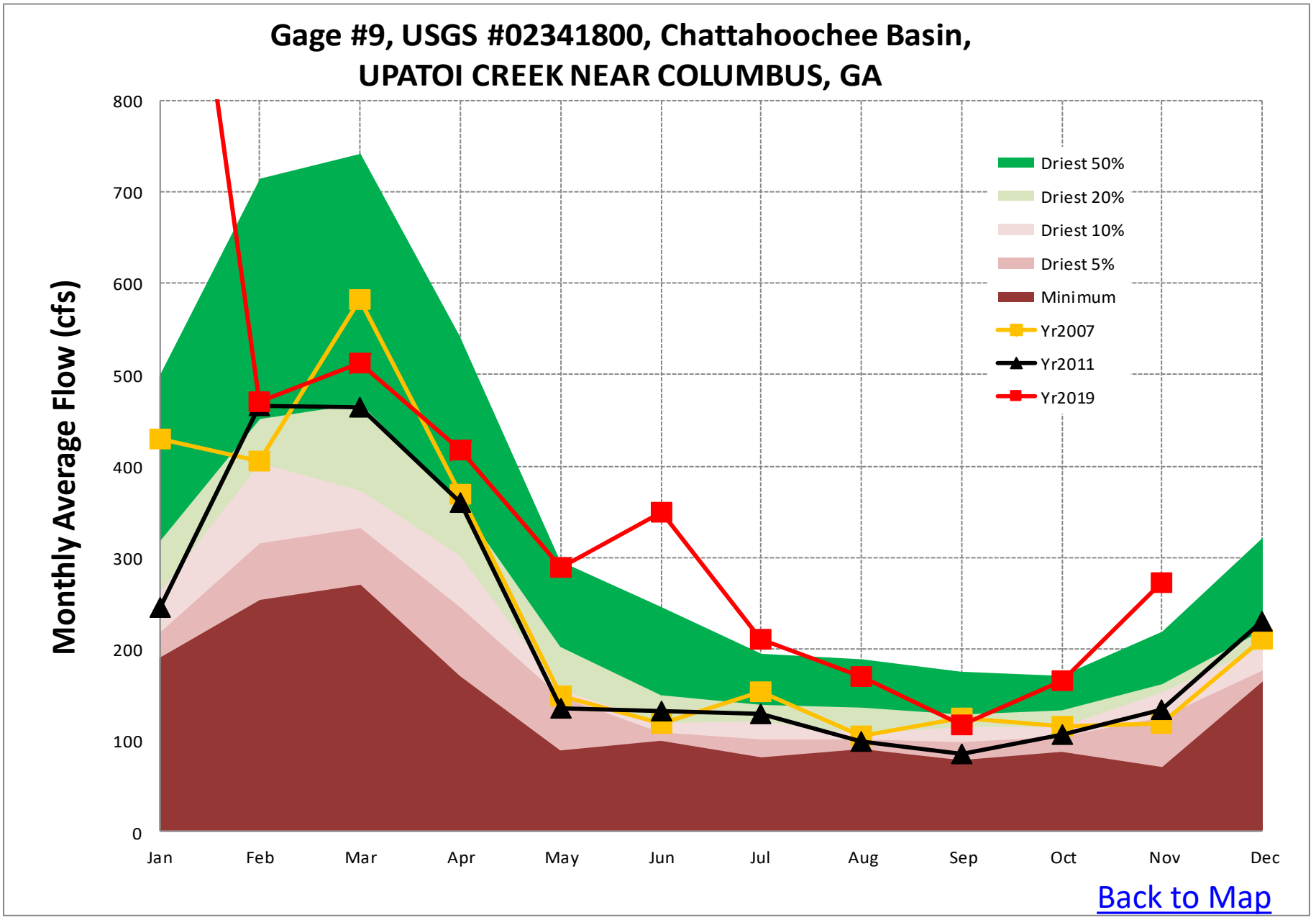
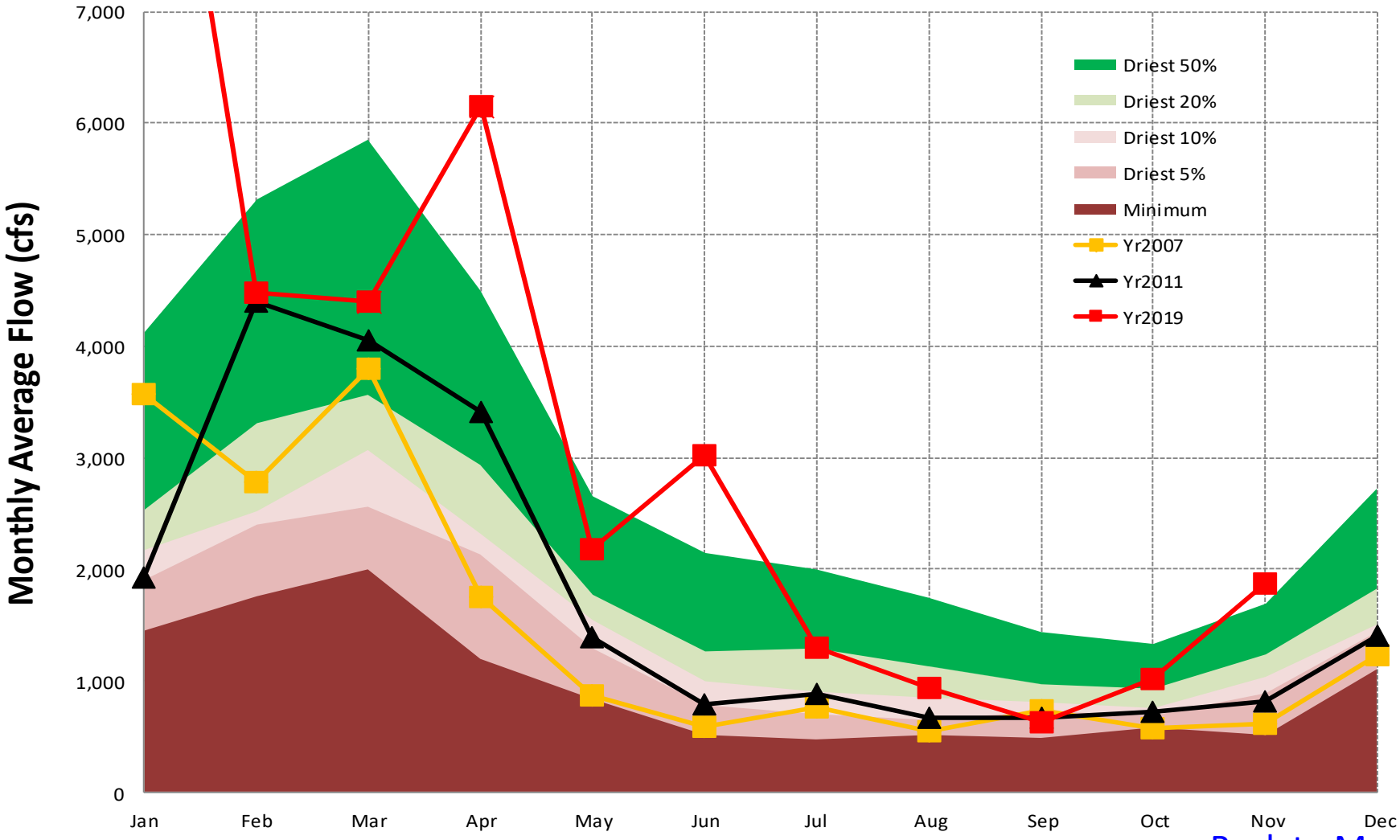

Gage #8, USGS #02338660, Chattahoochee Basin,
NEW RIVER AT GA 100, NEAR CORINTH
Monthly Average Flow (cfs)
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2019

Back to Map

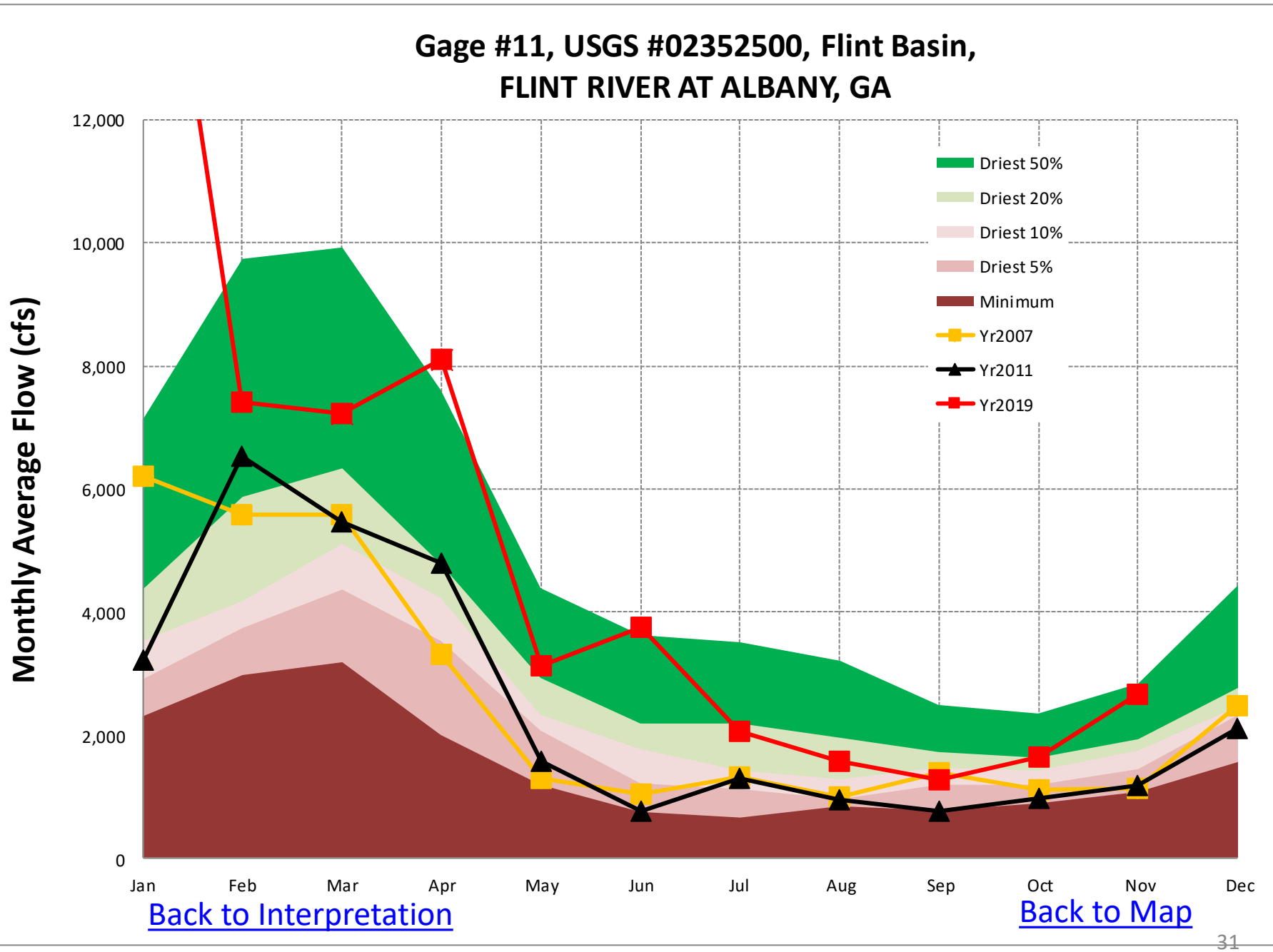

Gage #9, USGS #02341800, Chattahoochee Basin,
UPATOI CREEK NEAR COLUMBUS, GA
Monthly Average Flow (cfs)
800
700
600
500
400
300
200
100
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2019

Back to Map

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



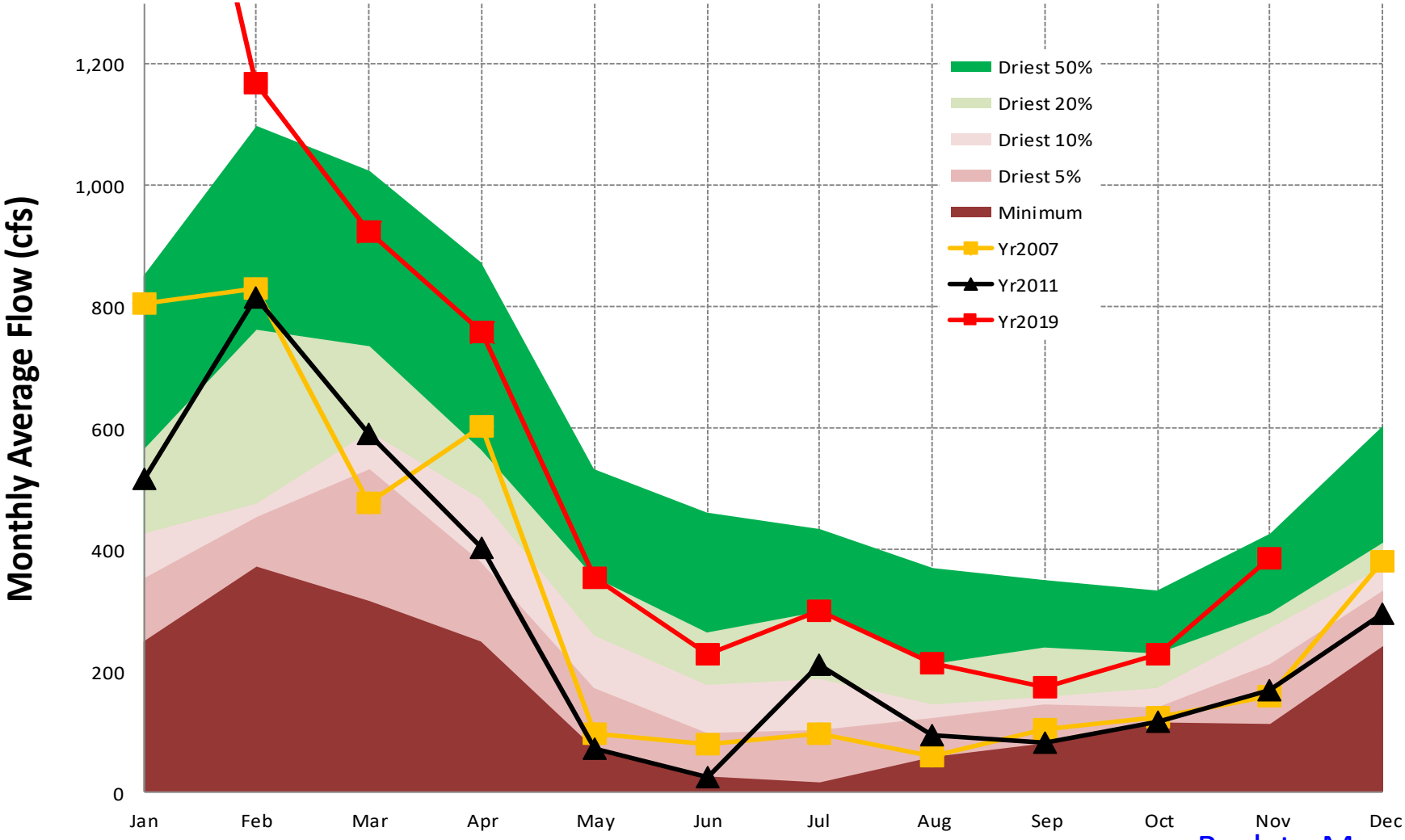
Back to Map



Back to Interpretation

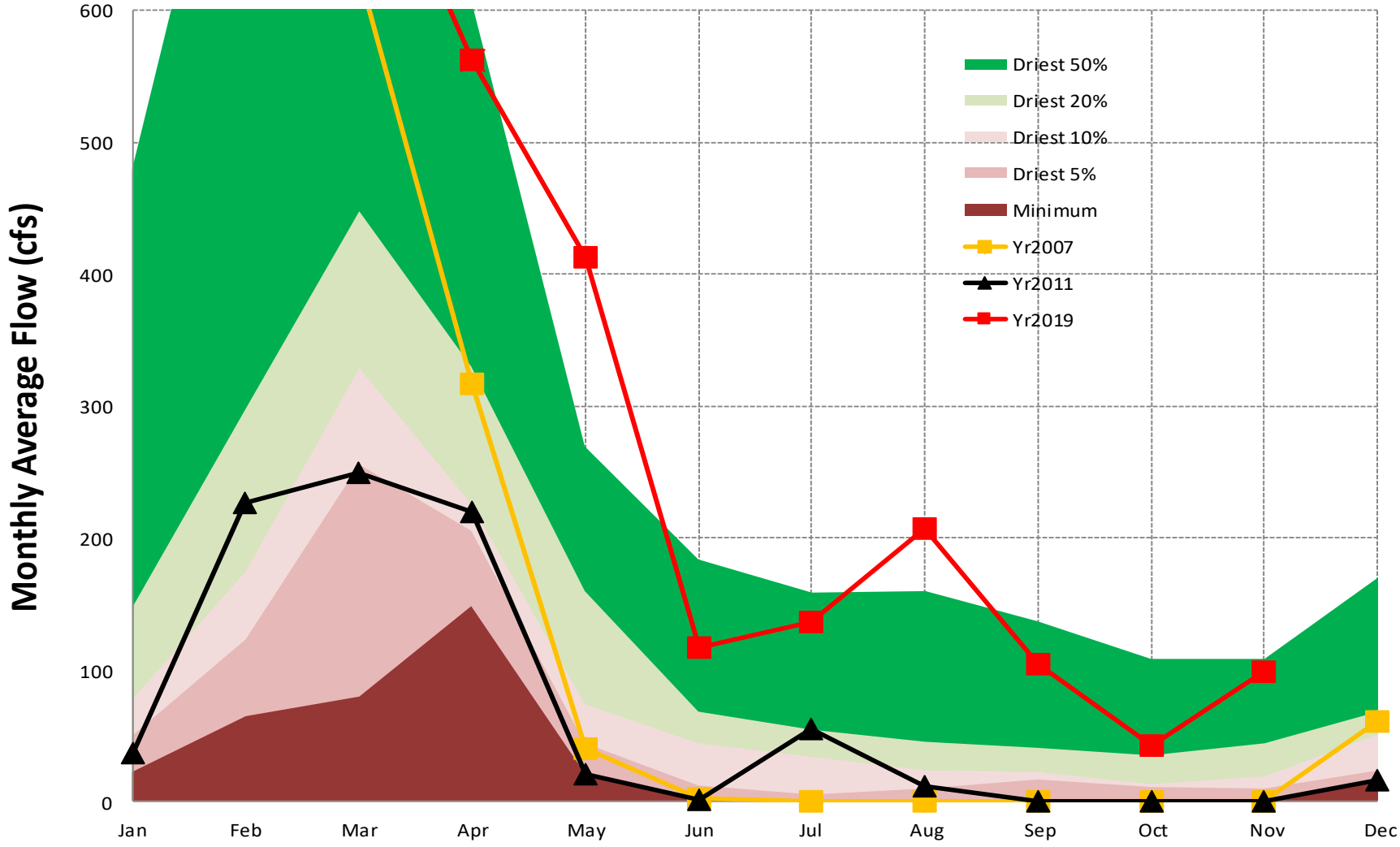
Back to Map

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



Back to Map

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



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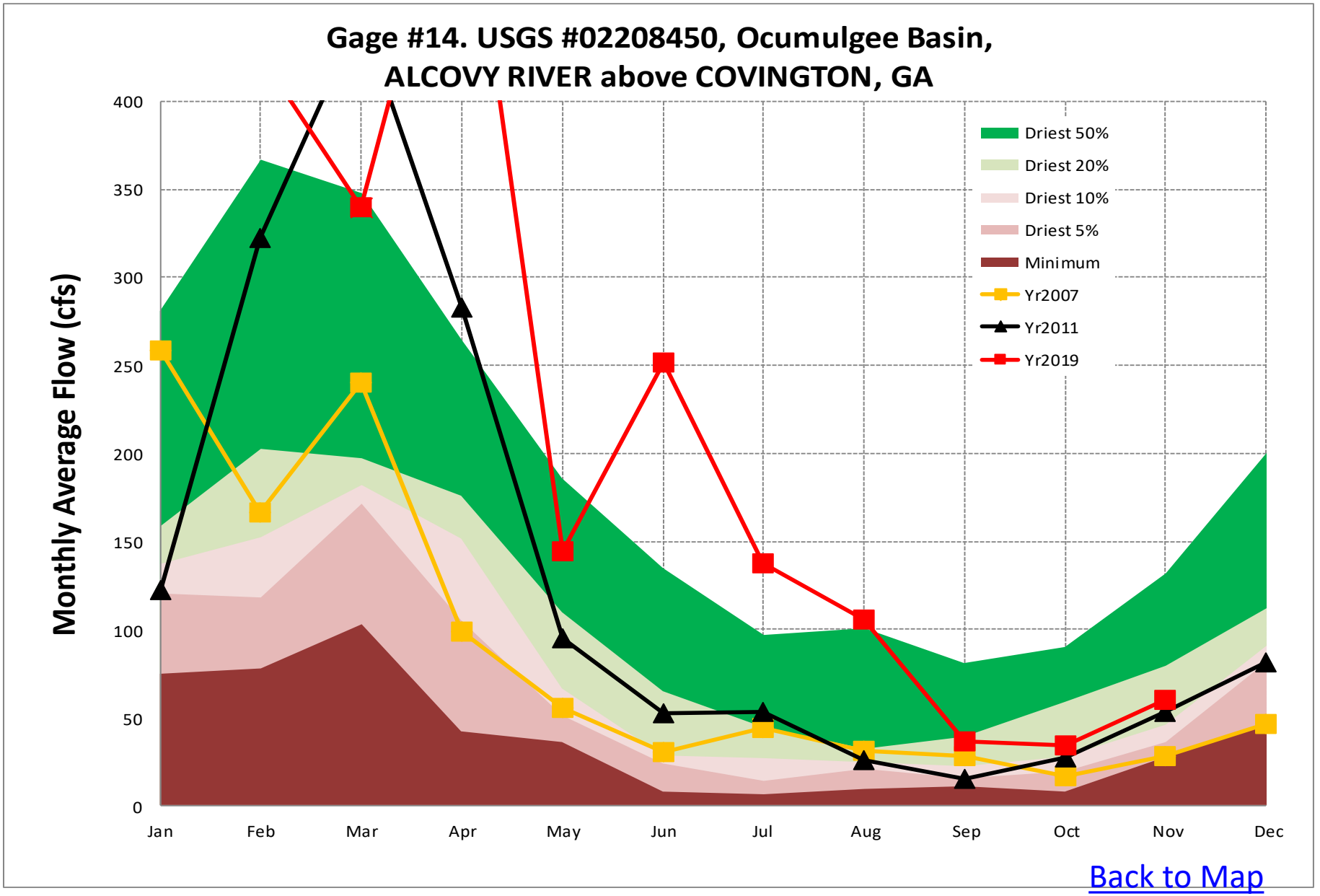
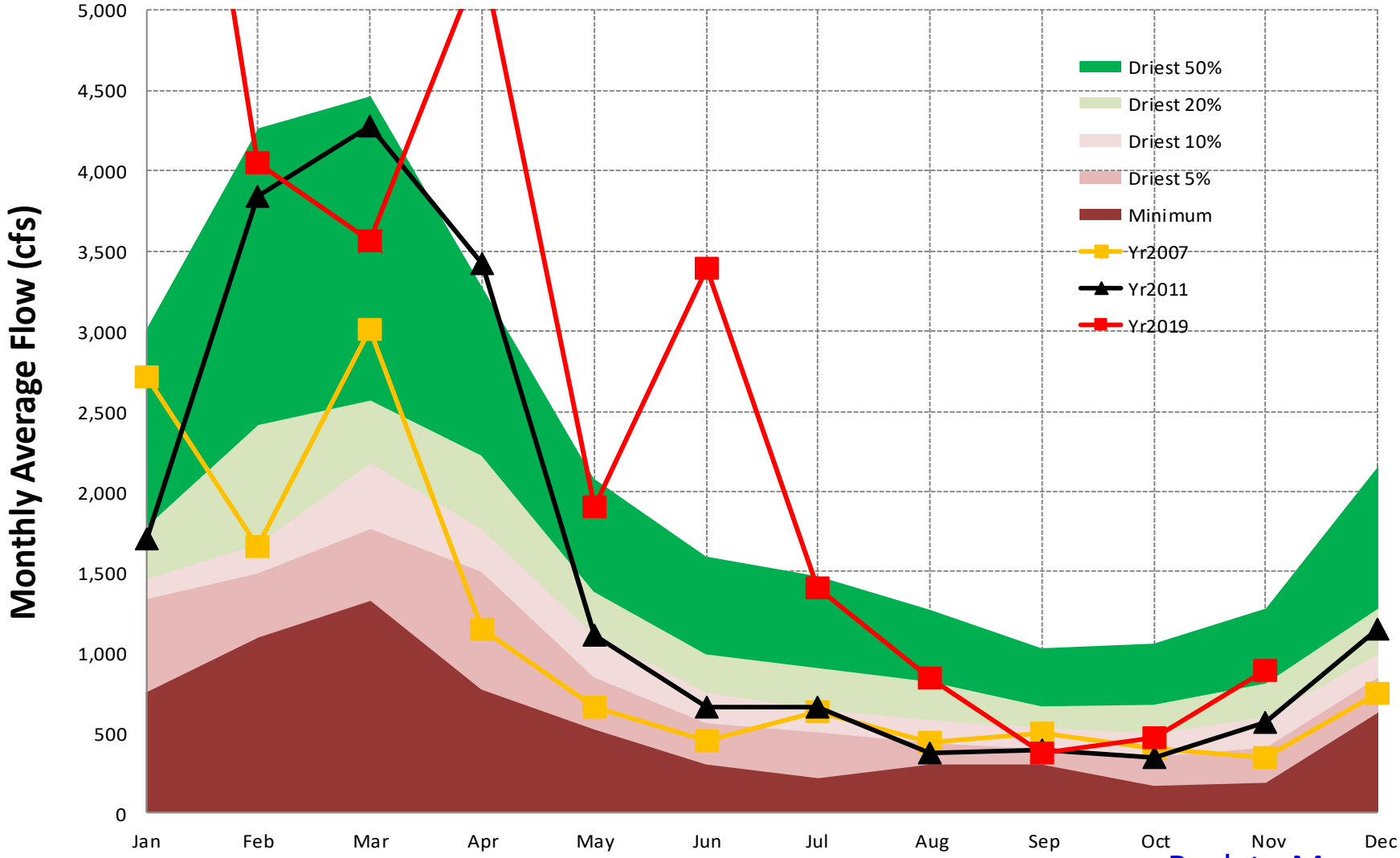

Gage #14. USGS #02208450, Ocumulgee Basin,
ALCOVY RIVER above COVINGTON, GA
Monthly Average Flow (cfs)
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2019

Back to Map

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



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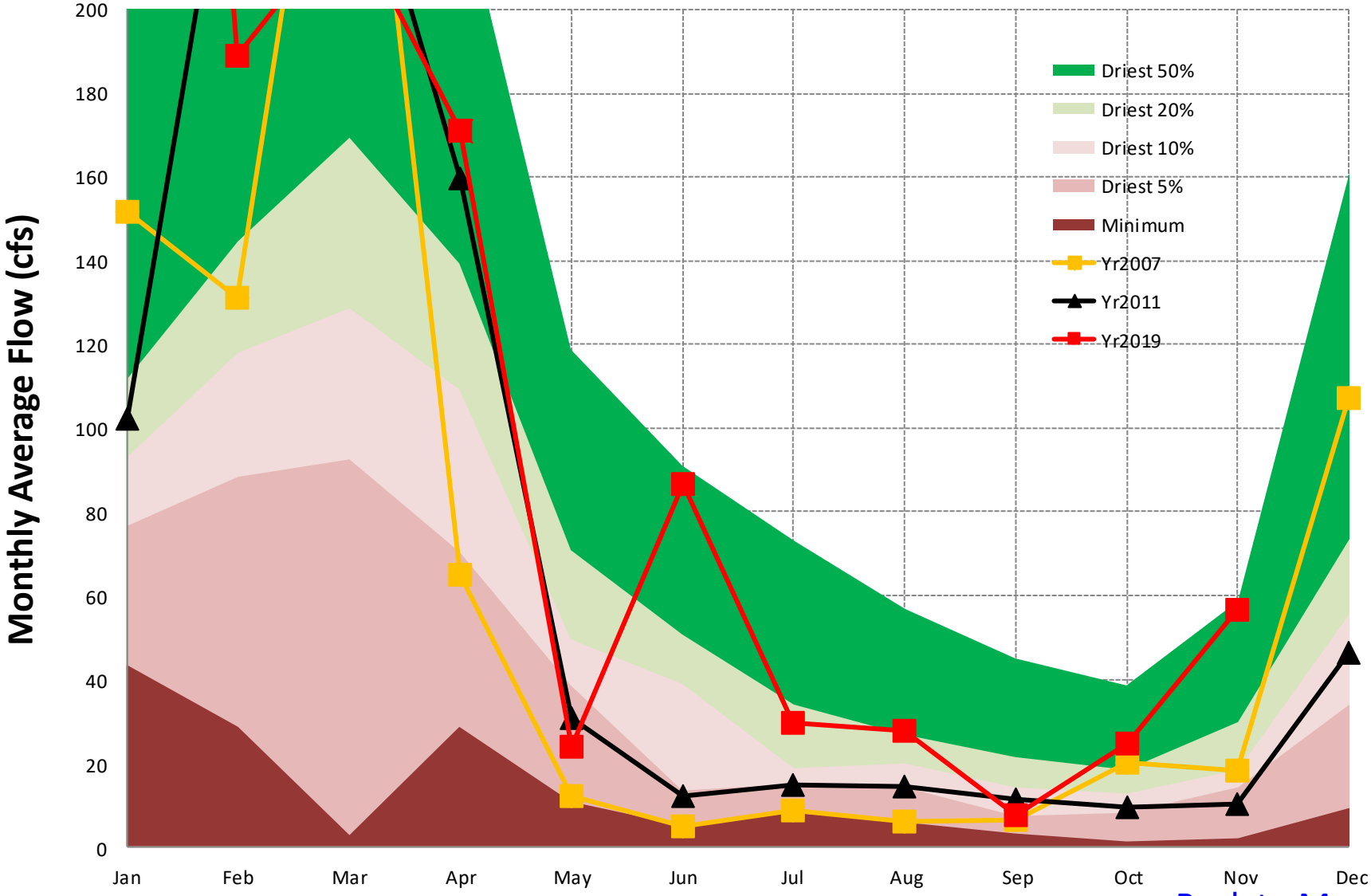
Gage #16. USGS #02213500, Ocmulgee Basin, TOBESOFKEE CREEK near MACON, GA



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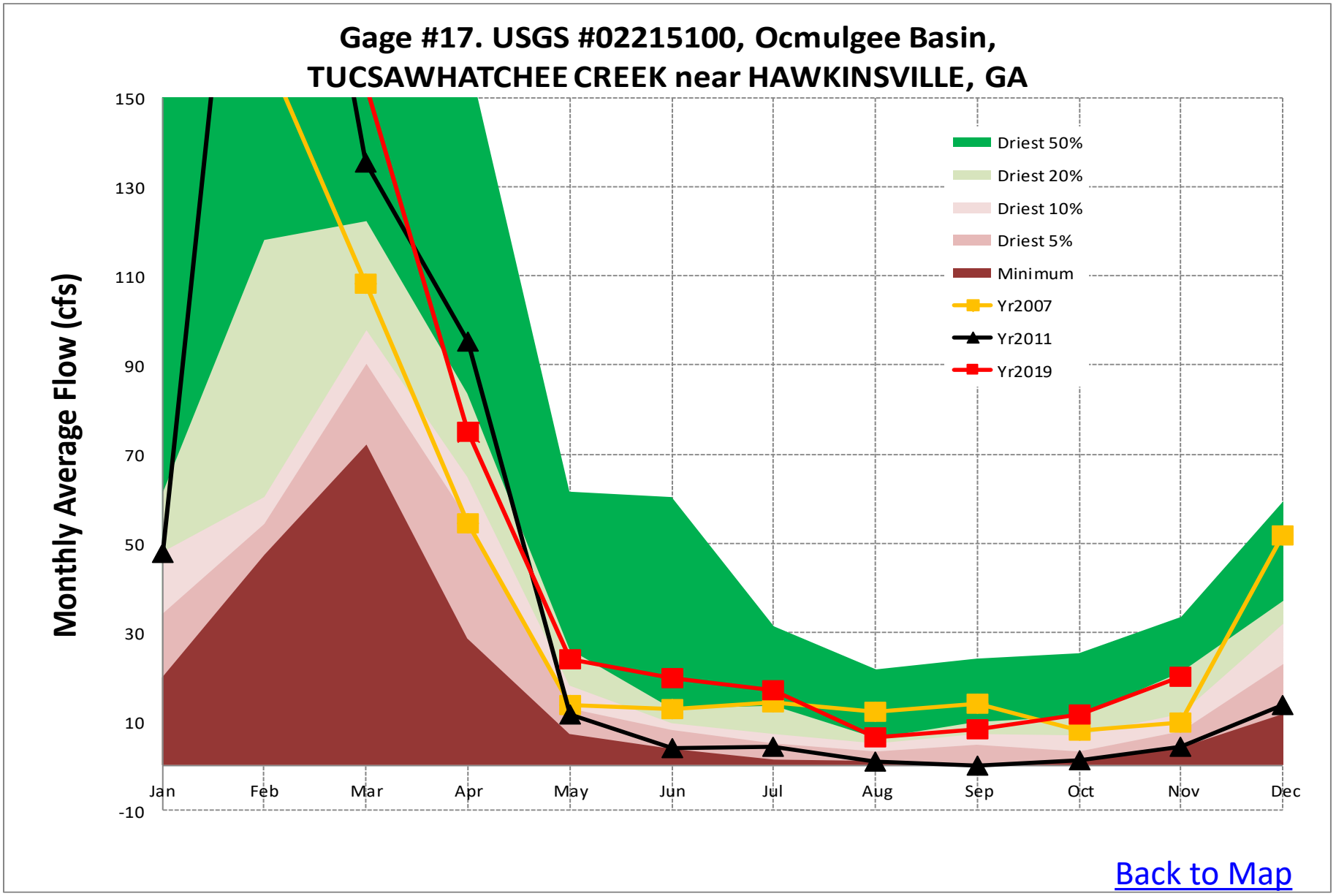
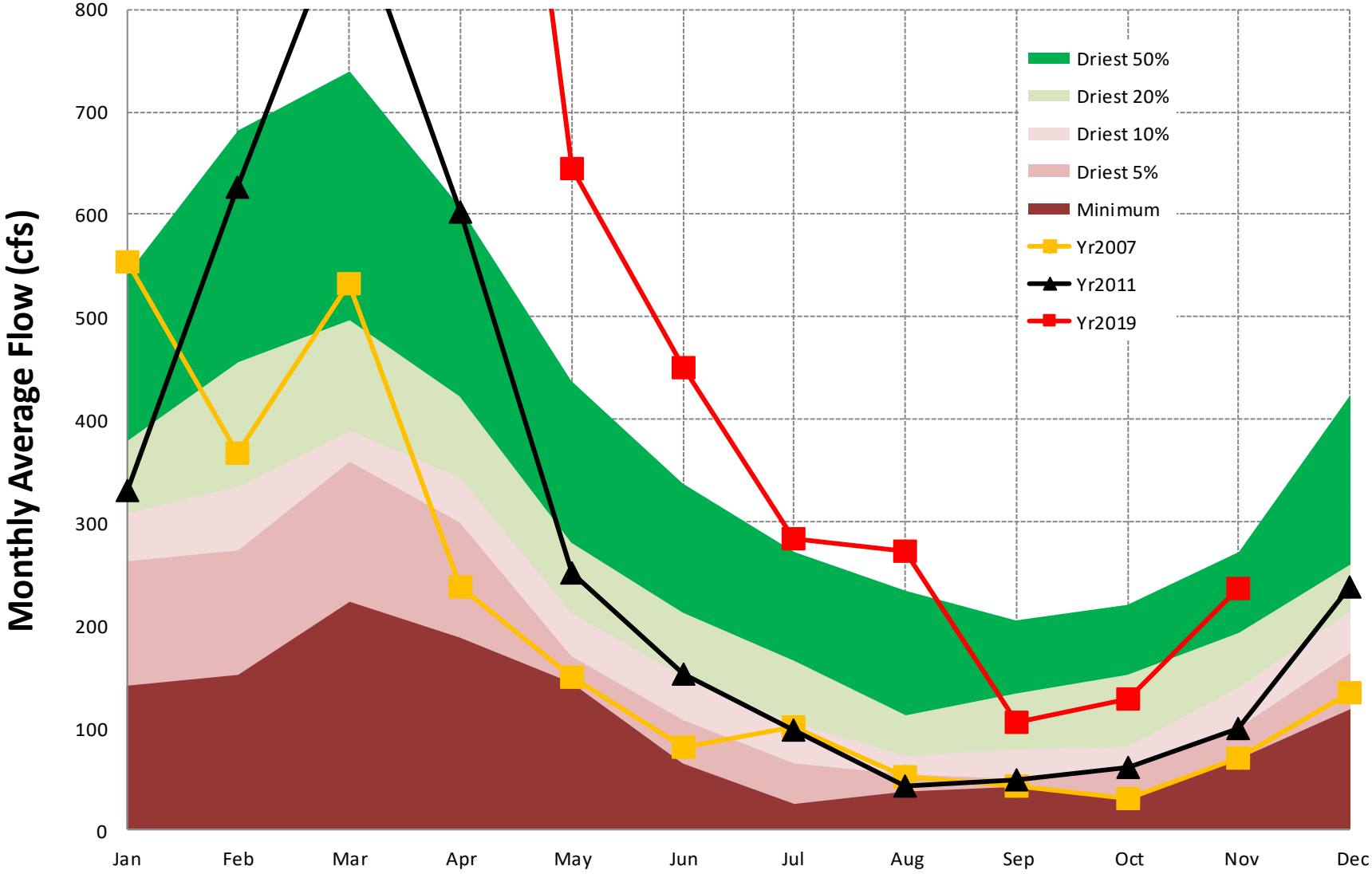

Gage #17. USGS #02215100, Ocmulgee Basin,
TUCSAWHATCHEE CREEK near HAWKINSVILLE, GA
Monthly Average Flow (cfs)
150
130
110
90
70
50
30
10
-10
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2019

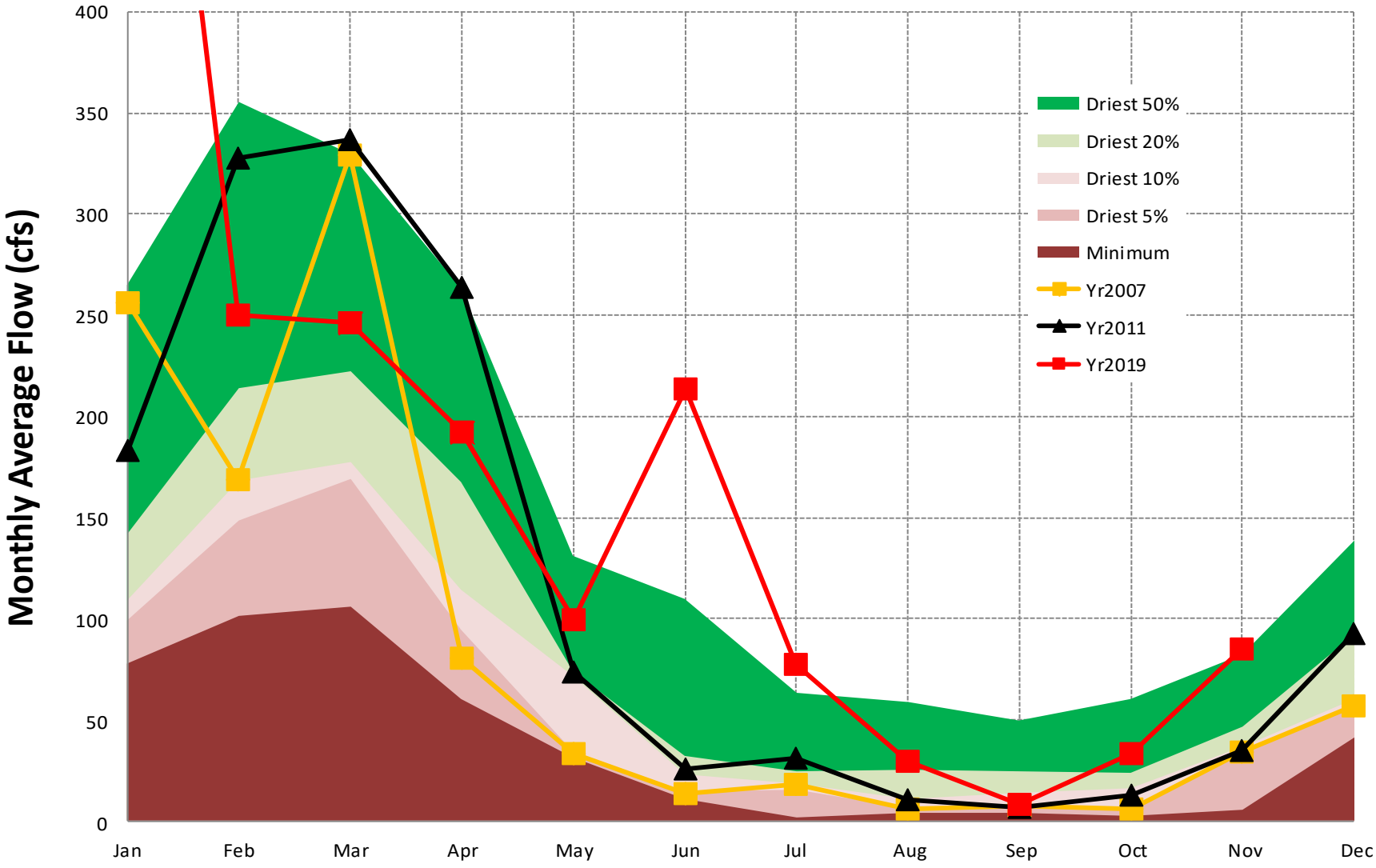
Back to Map

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



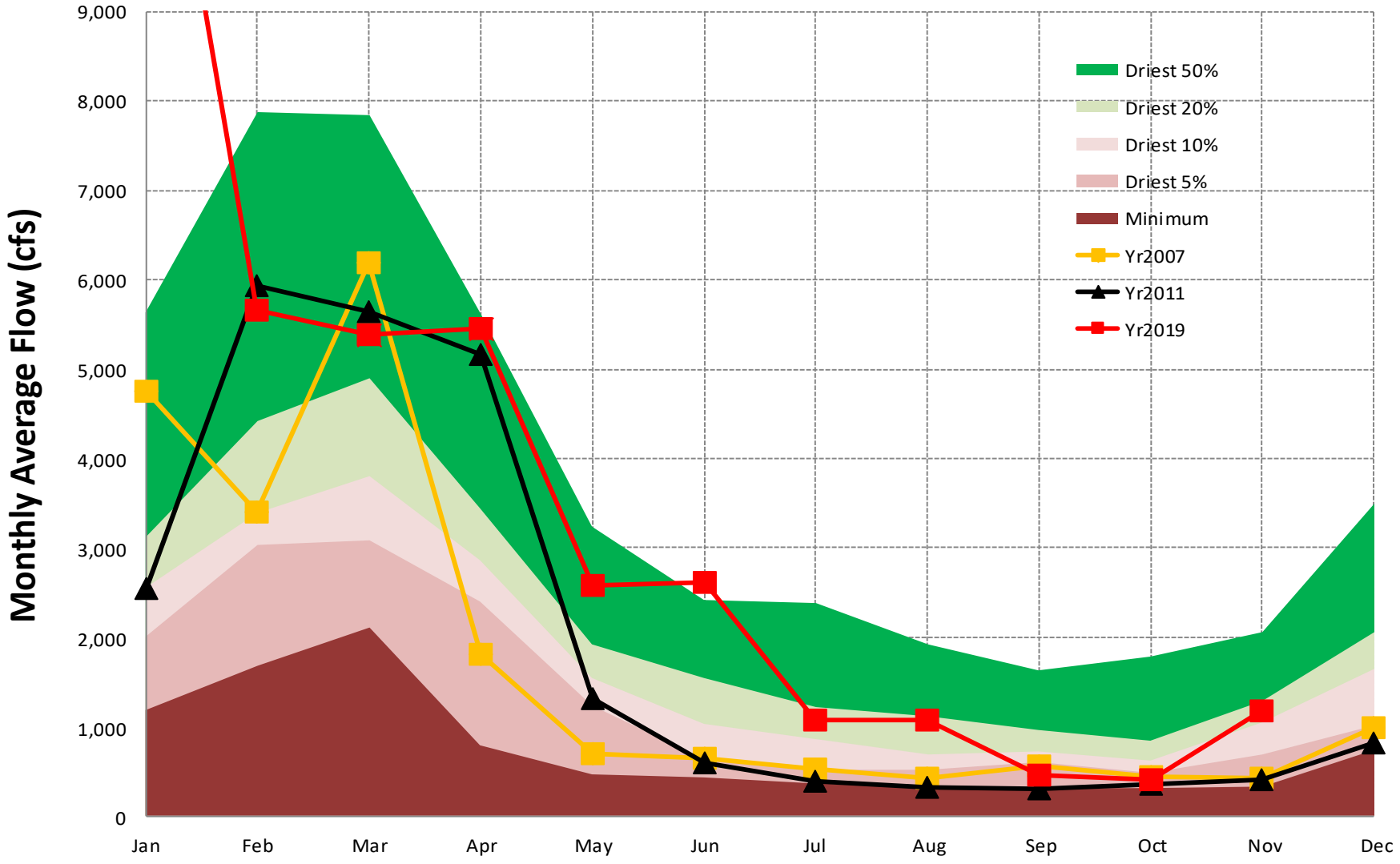
Back to Map

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



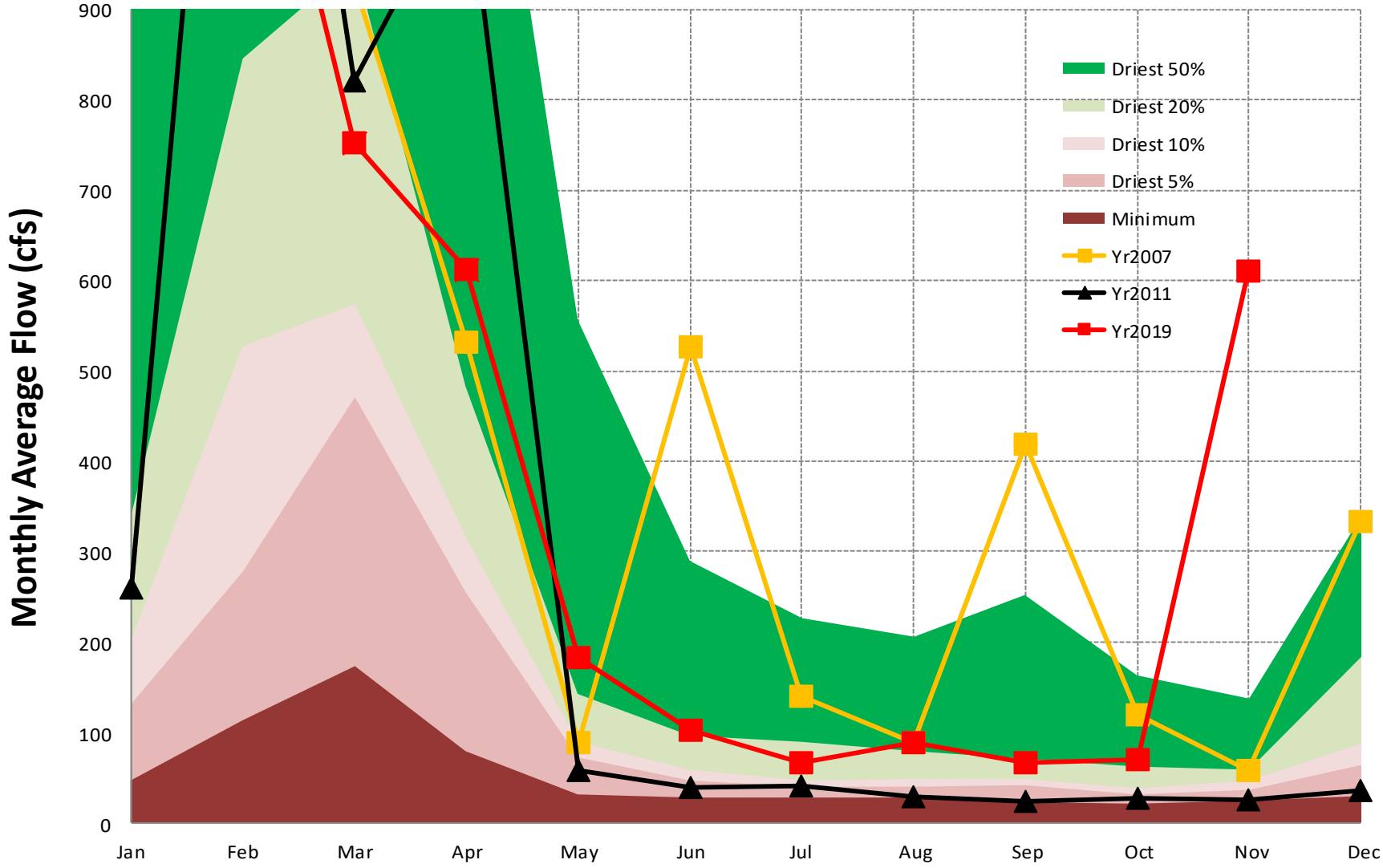
Back to Map

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

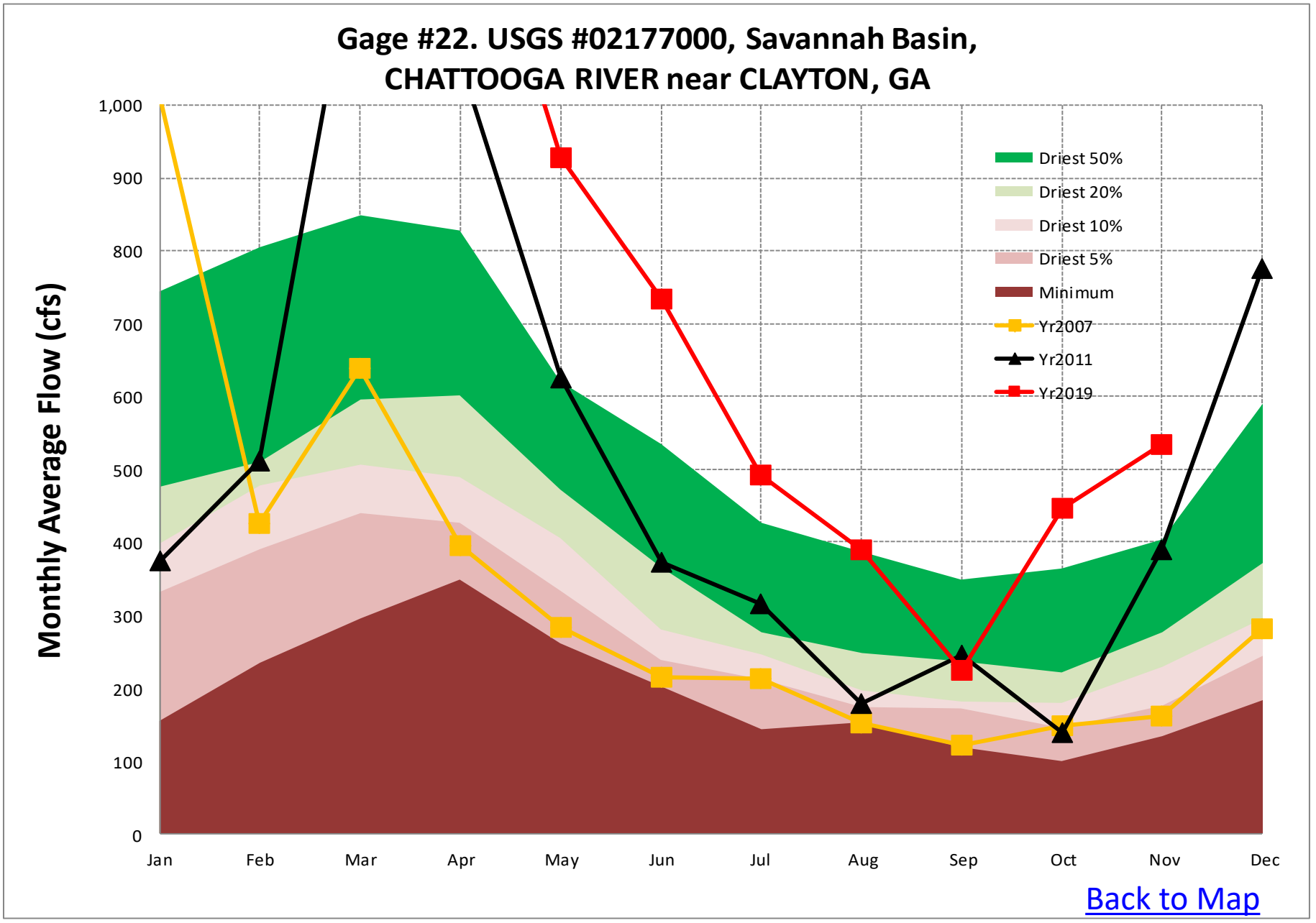


Back to Map

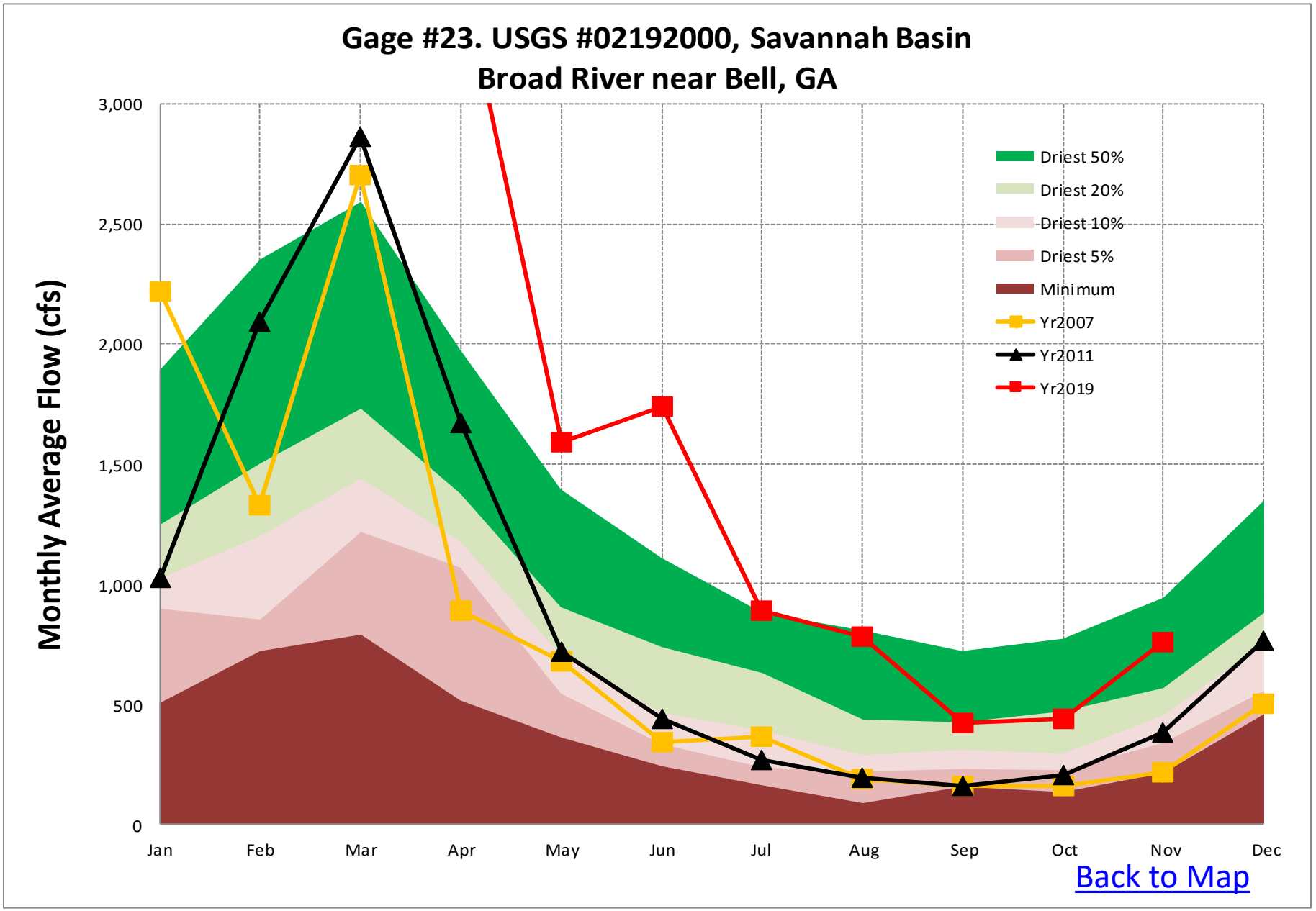
Gage #21. USGS #02225500, Altamaha Basin, OHOOPEE RIVER near REIDSVILLE, GA



Back to Map

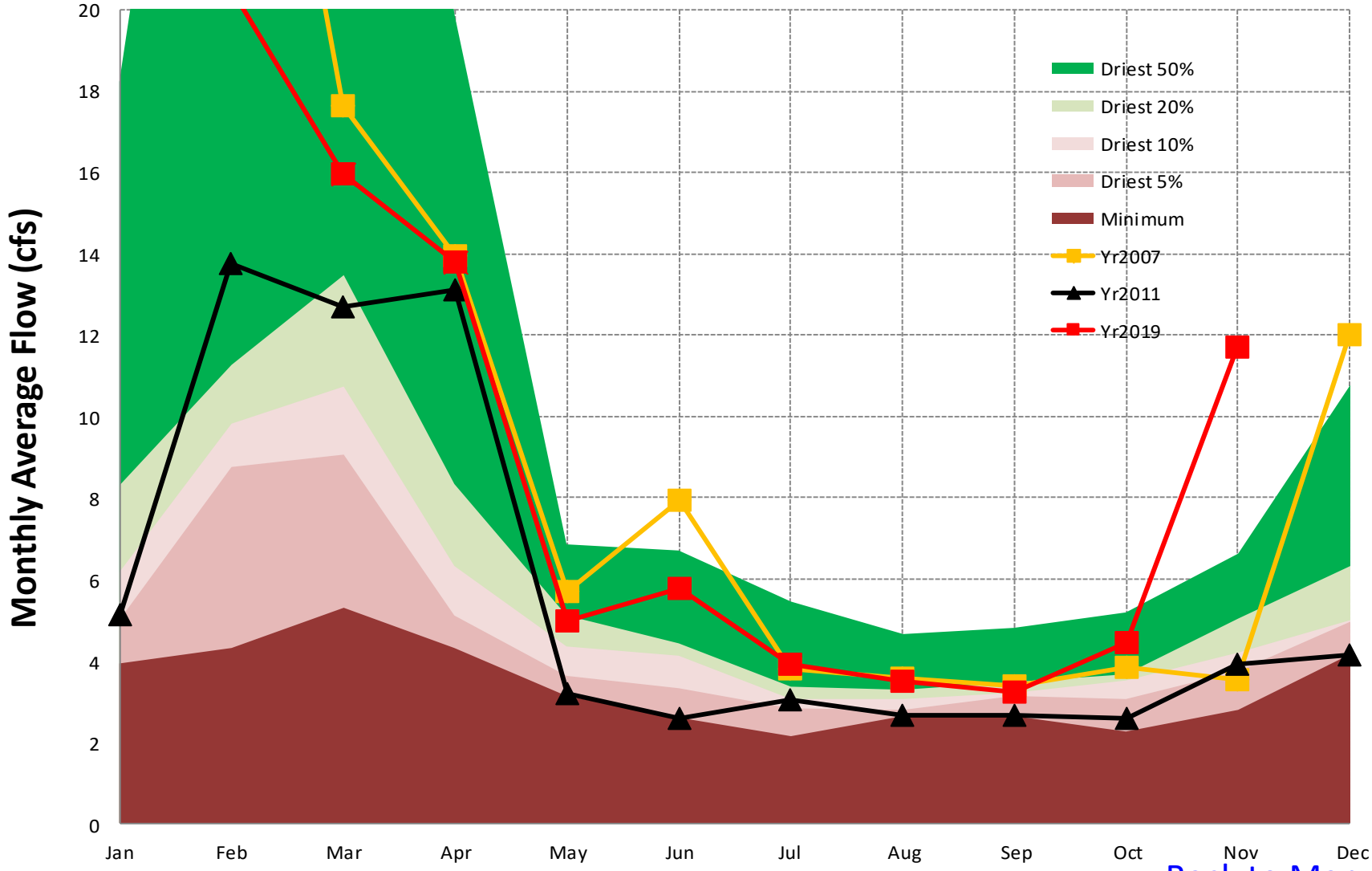

Gage #22. USGS #02177000, Savannah Basin,
CHATTOOGA RIVER near CLAYTON, GA
Monthly Average Flow (cfs)
1,000
900
800
700
600
500
400
300
200
100
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2019

Back to Map


Gage #23. USGS #02192000, Savannah Basin
Broad River near Bell, GA
Monthly Average Flow (cfs)
3,000
2,500
2,000
1,500
1,000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2019

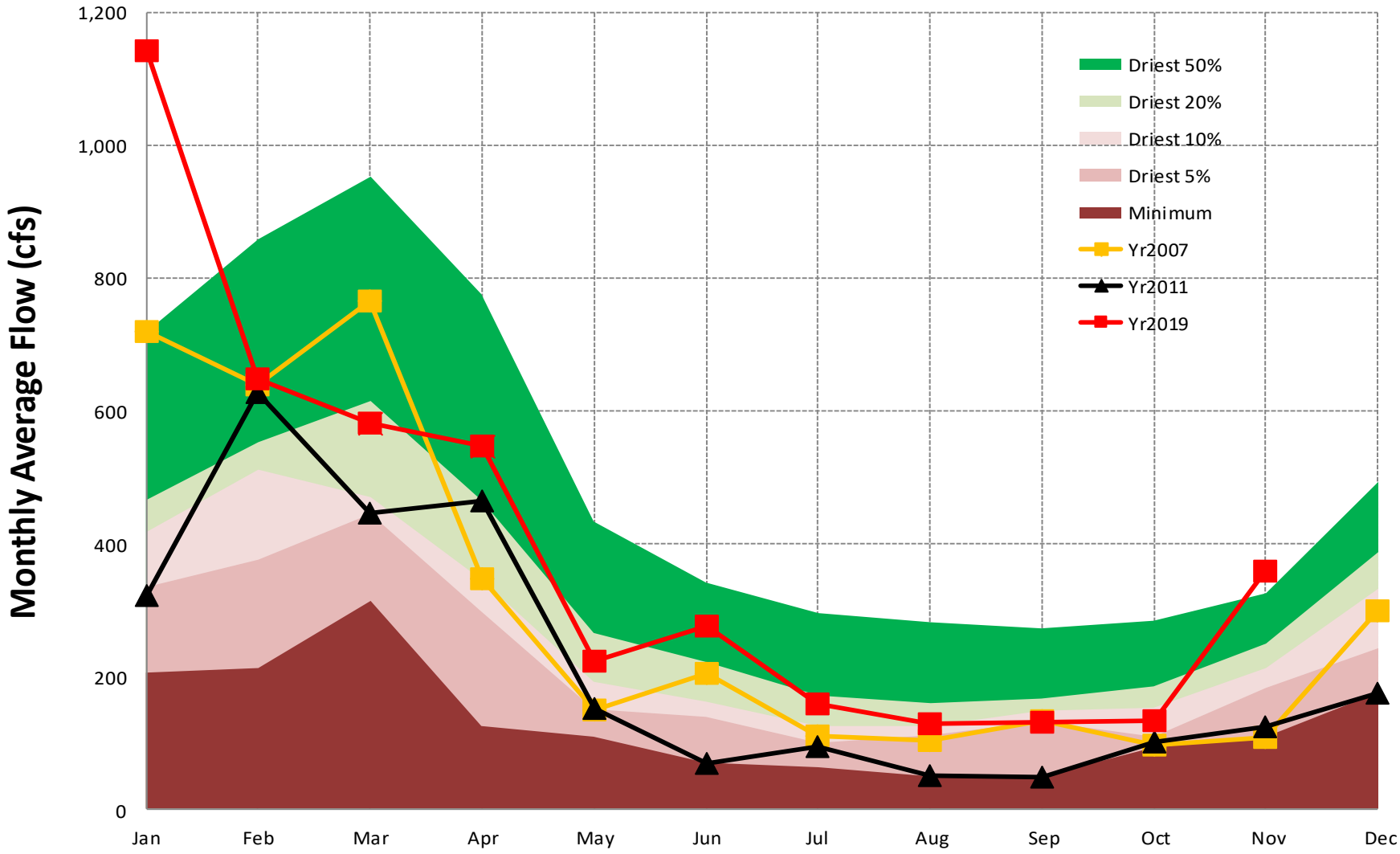
Back to Map

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



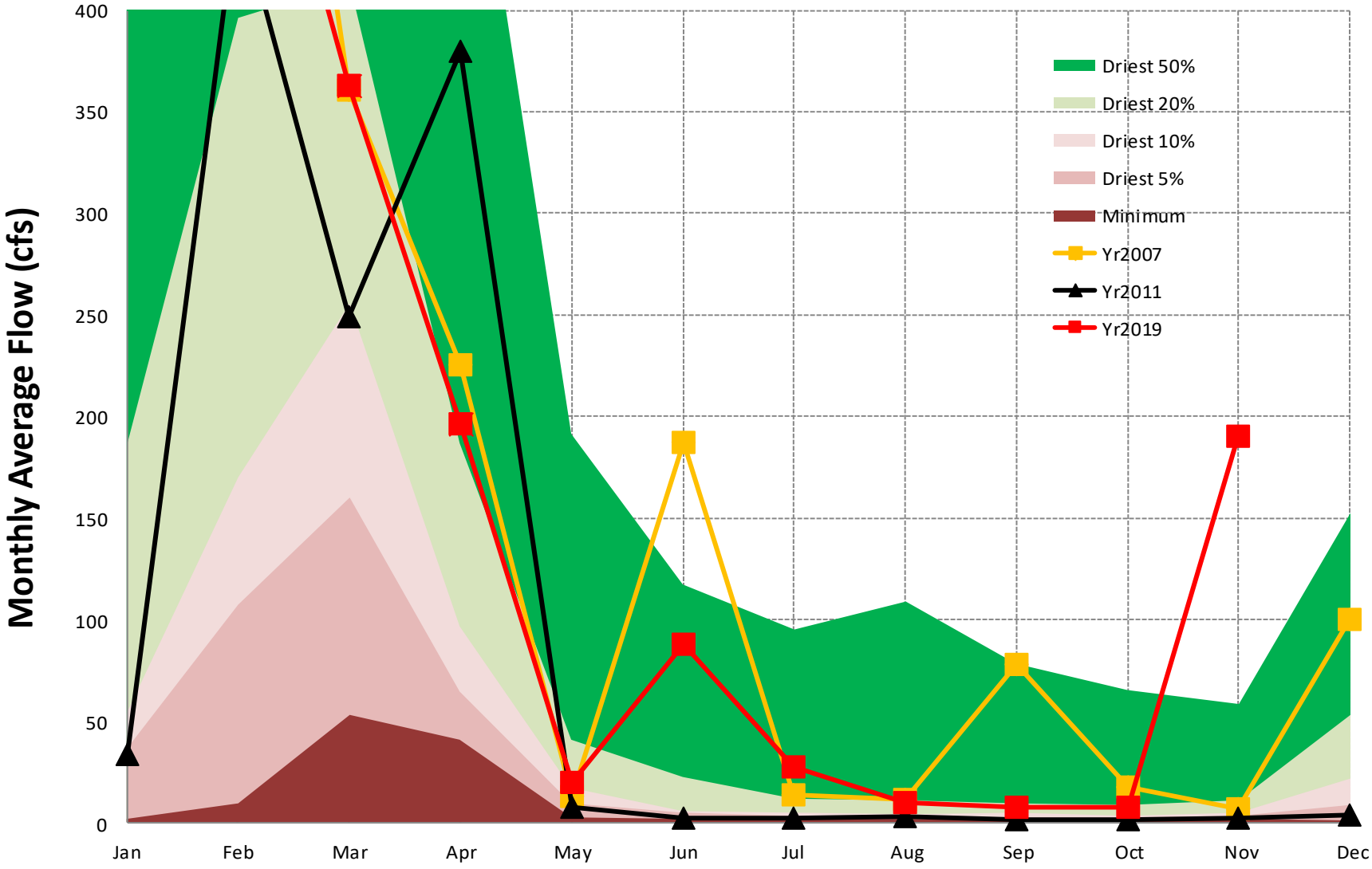
Back to Map

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



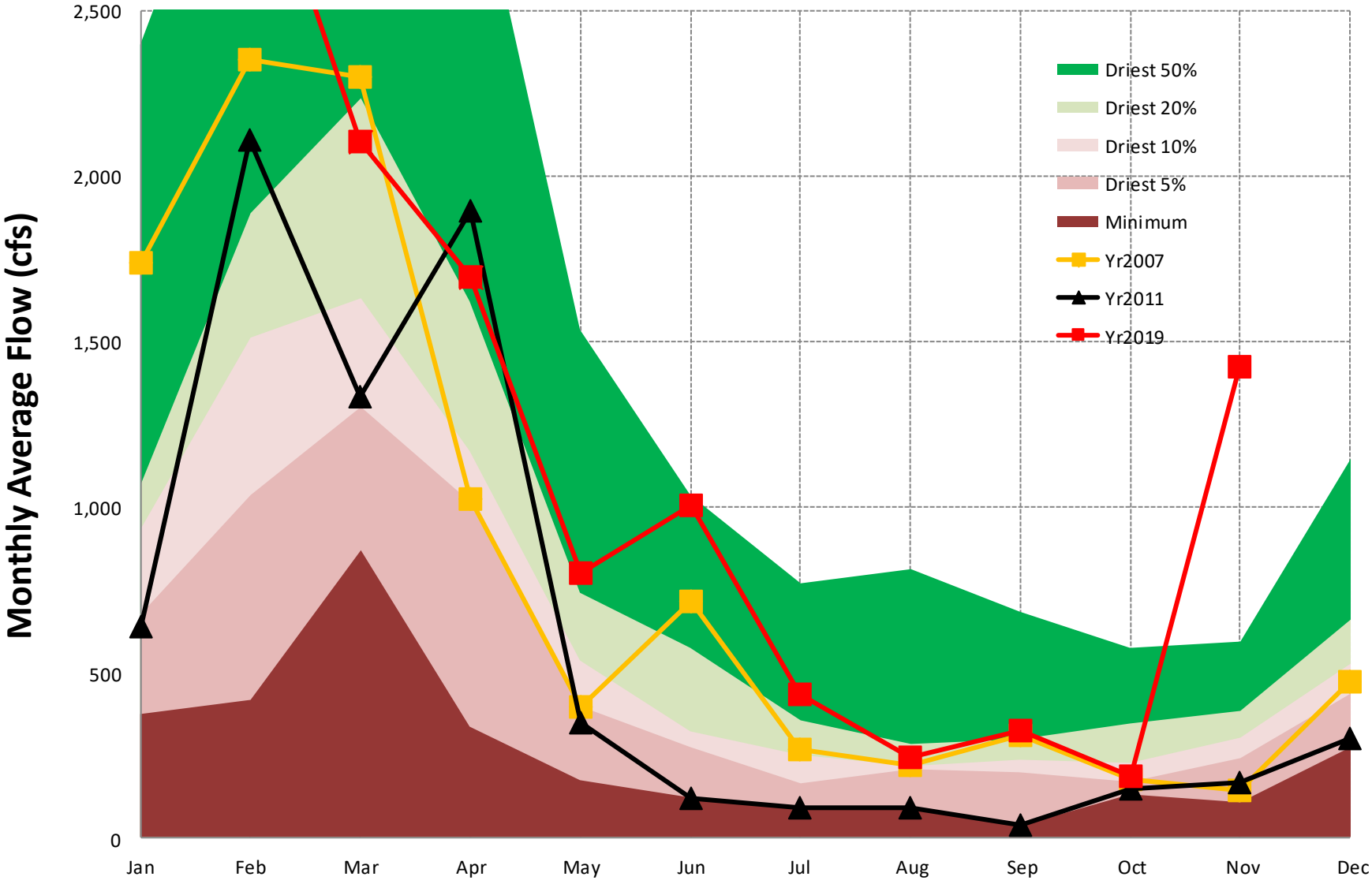
Back to Map

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



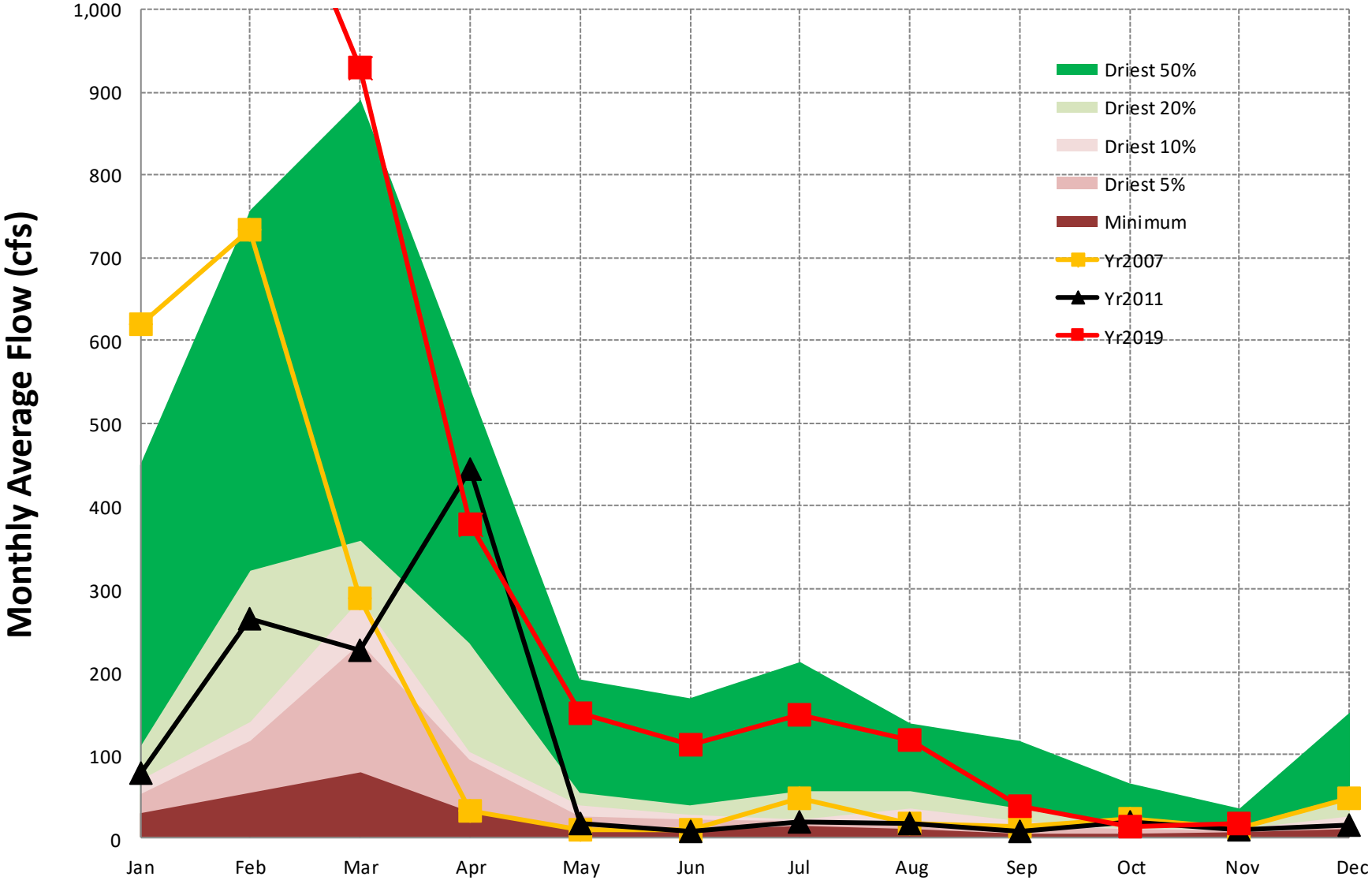
Back to Map

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



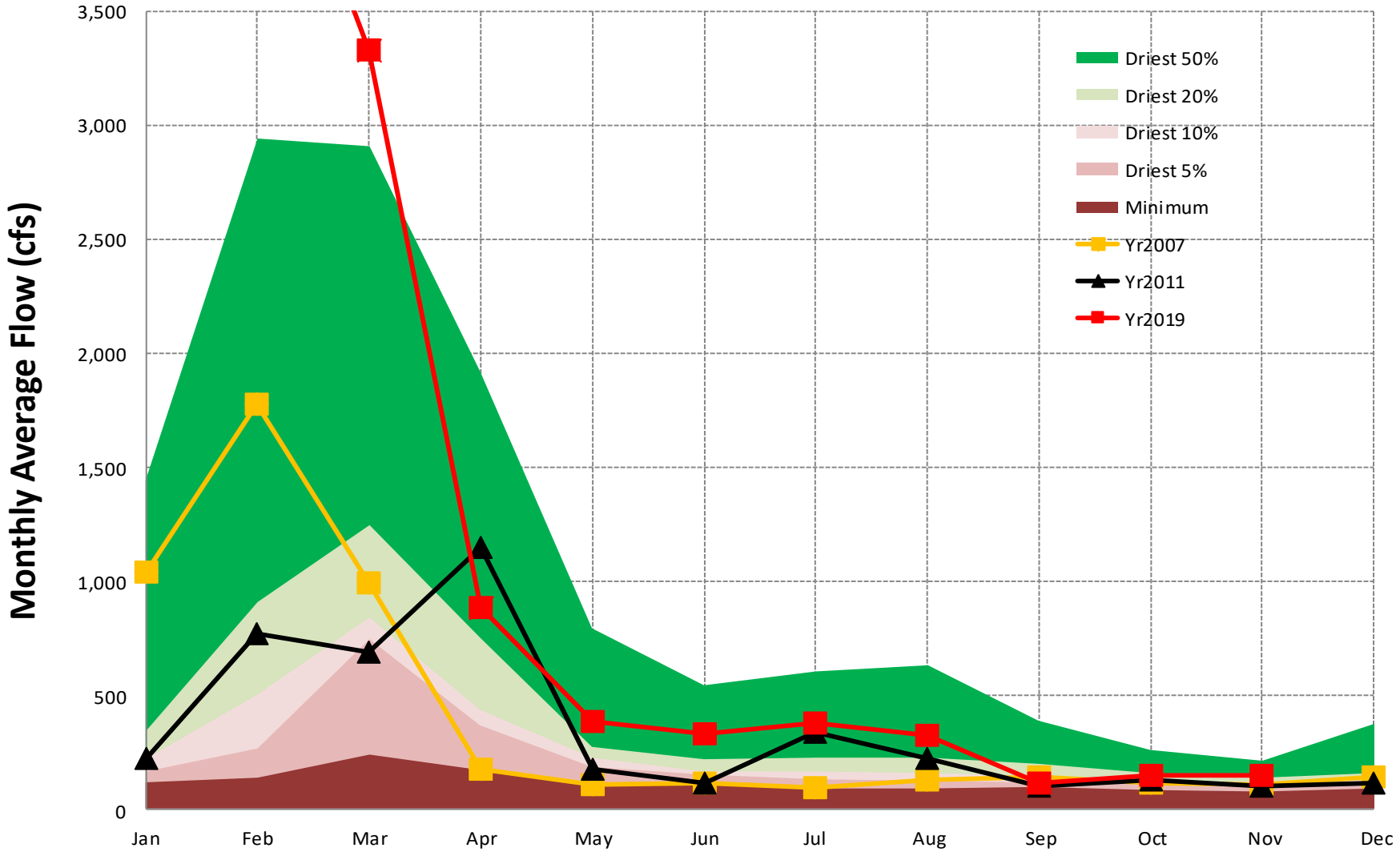
Back to Map

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



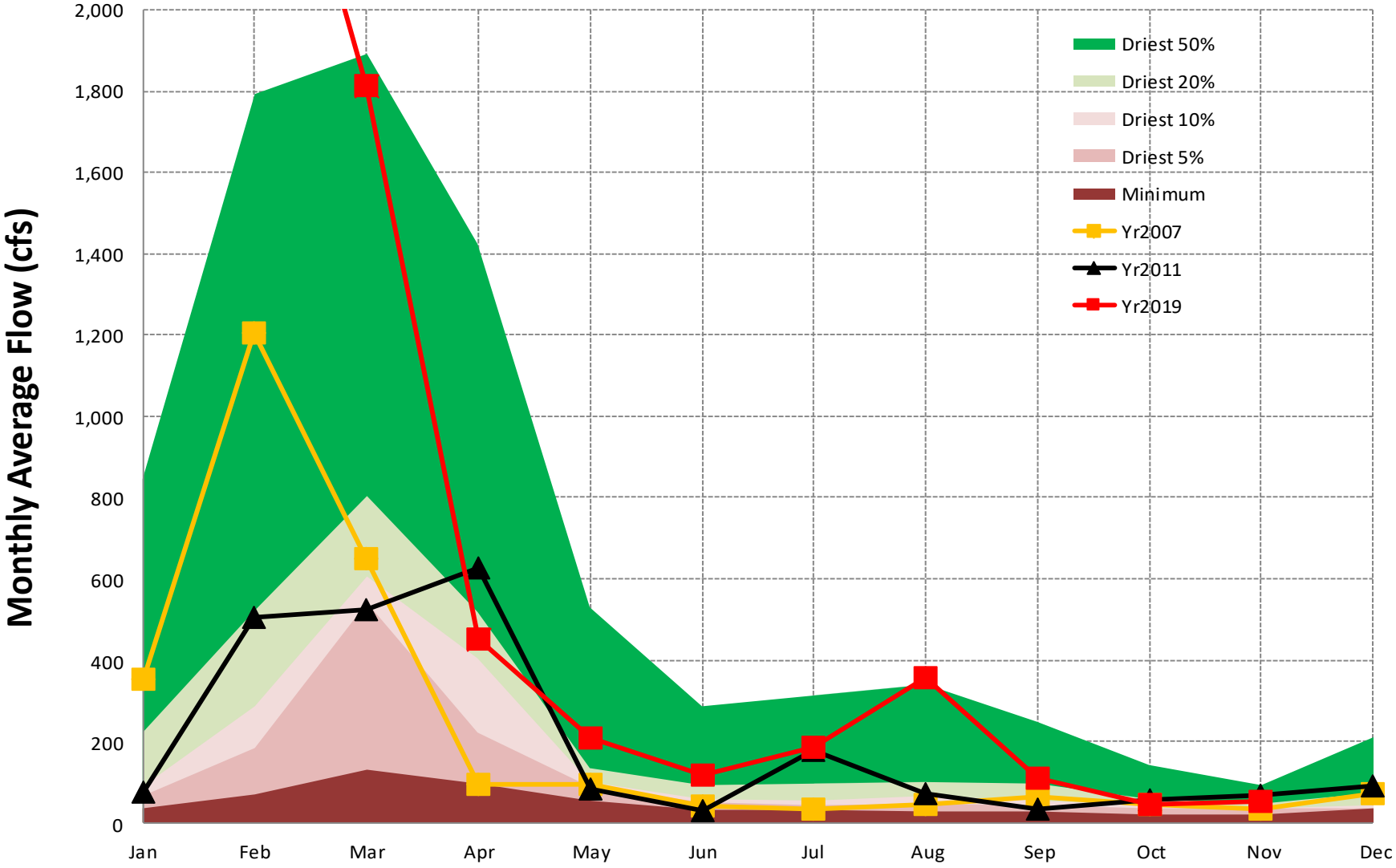
Back to Map

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



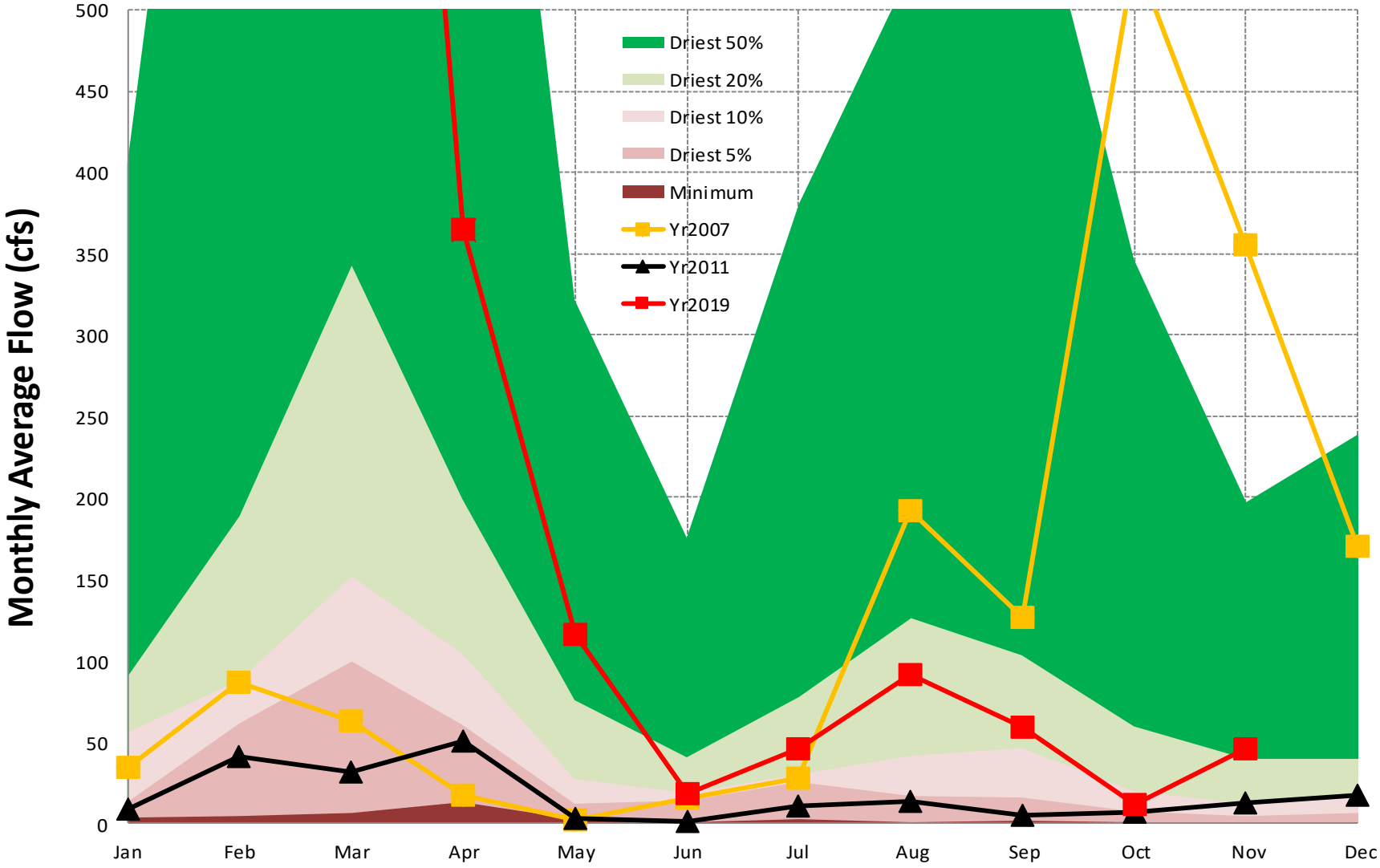
Back to Map

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



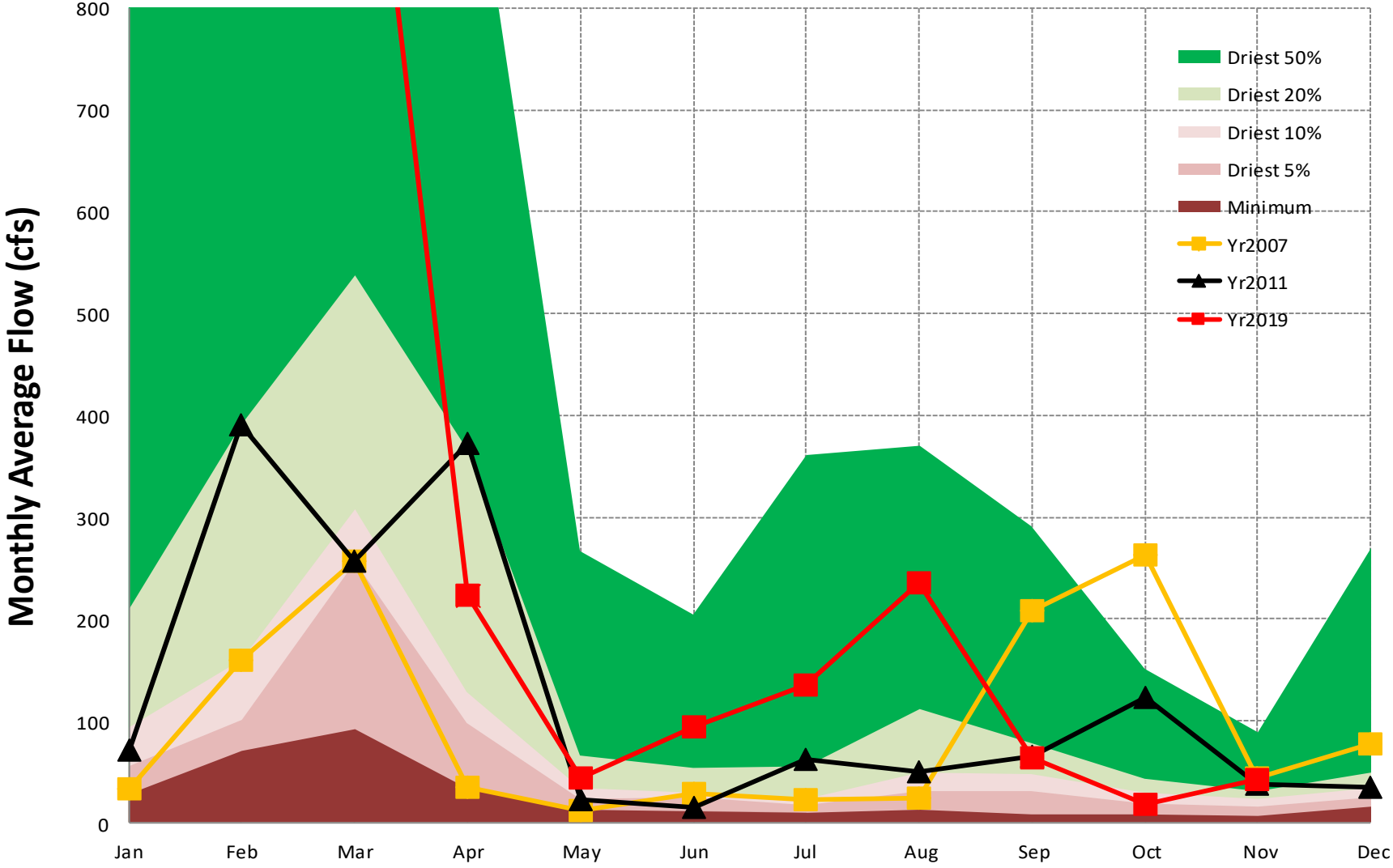
Back to Map

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



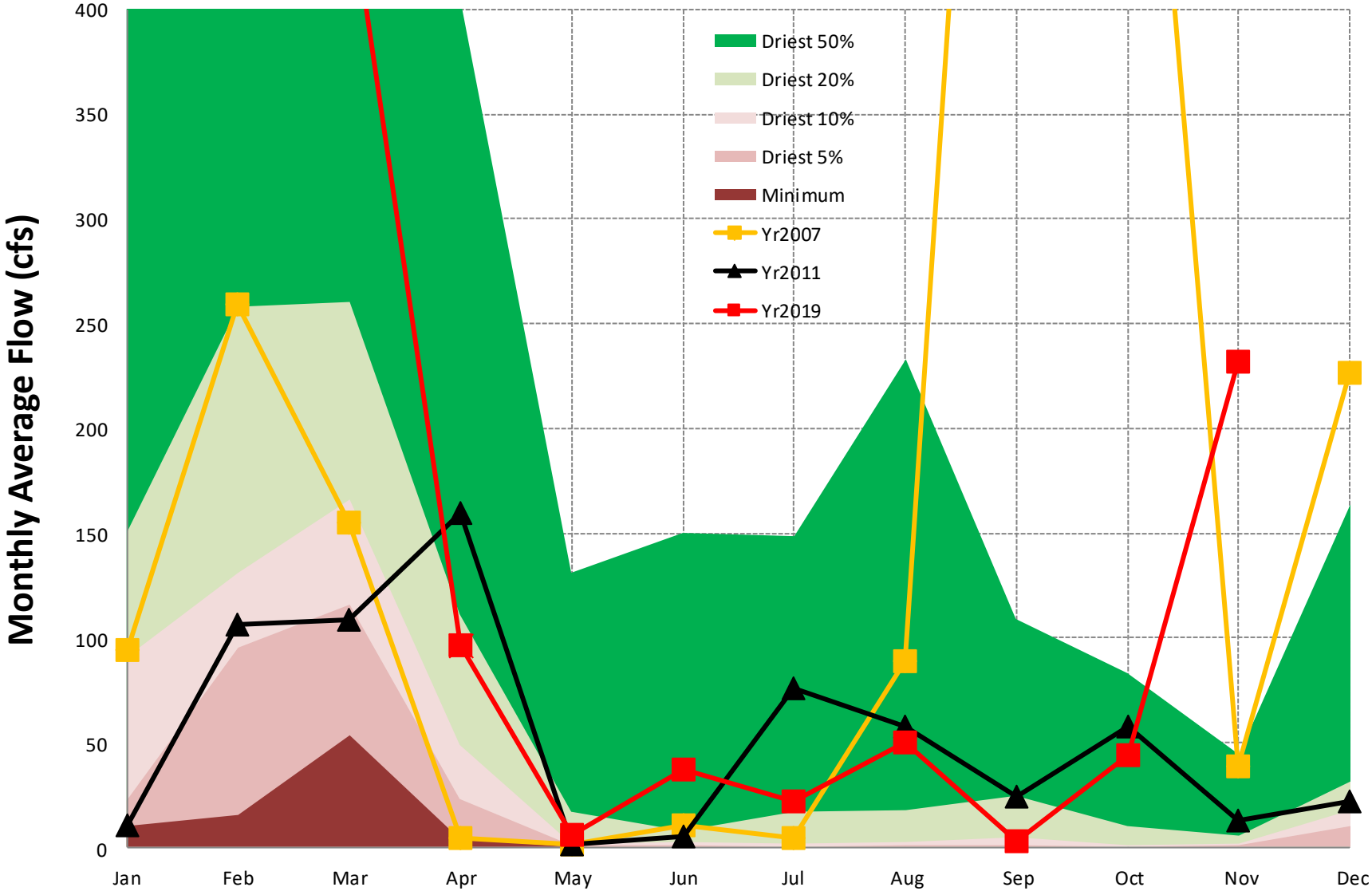
Back to Map

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



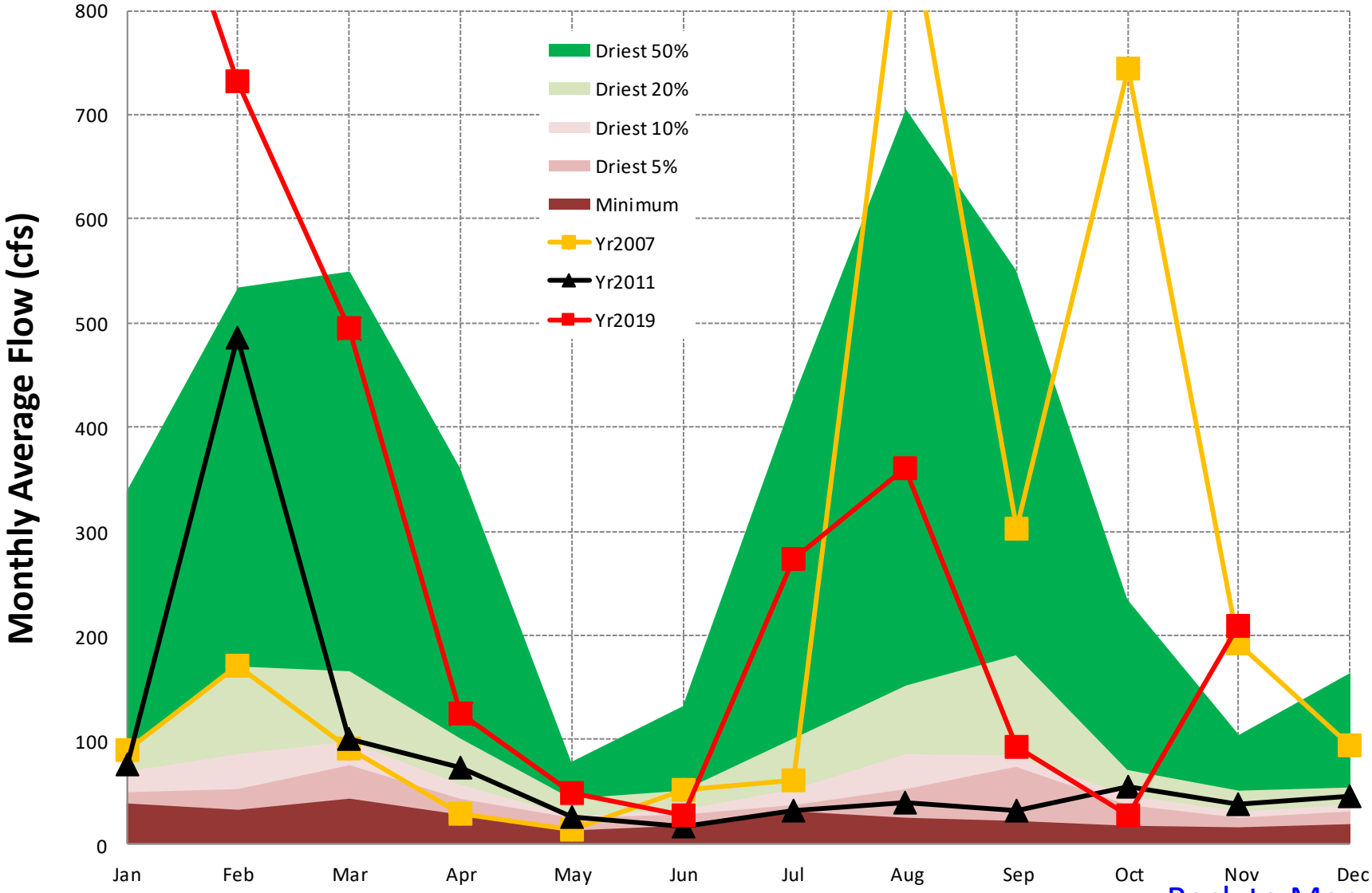
Back to Map

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



Back to Map

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



Back to Map

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

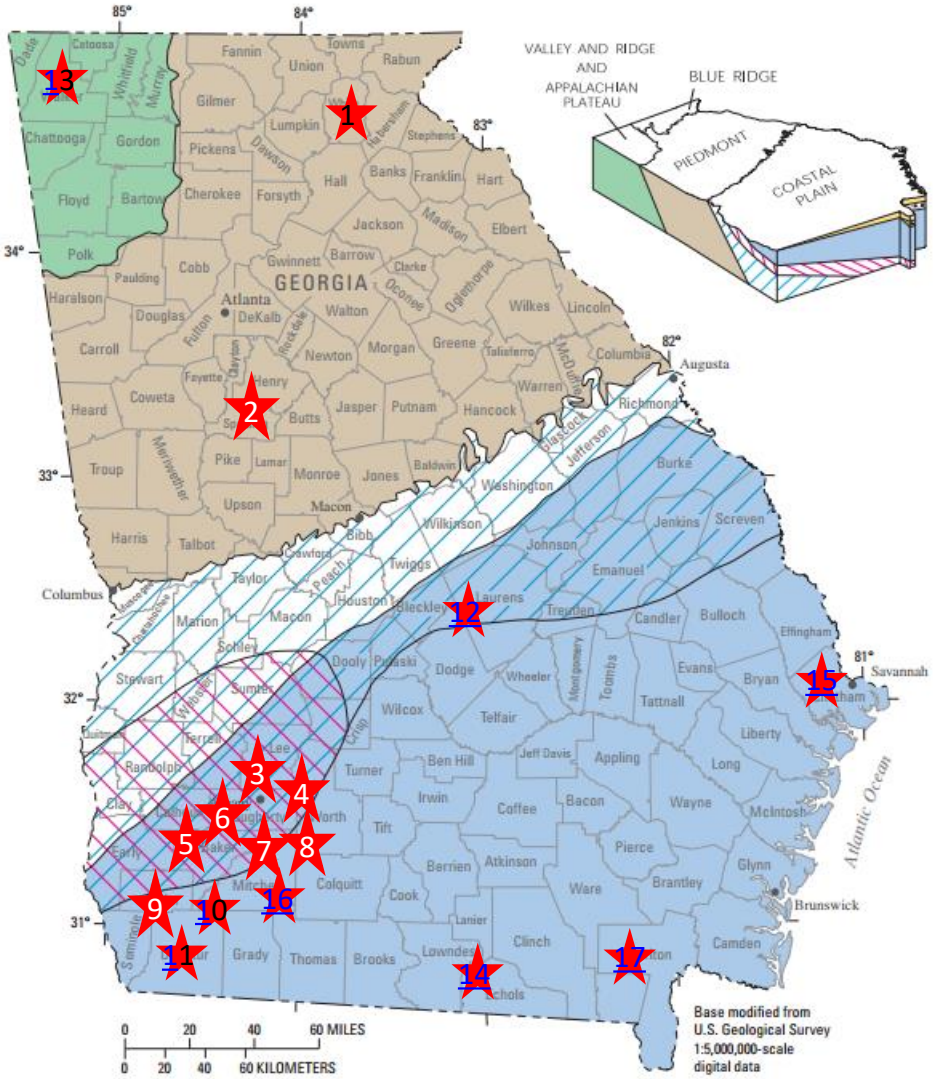


Figure 2. Area of use of principal aquifers and physiographic provinces in Georgia (modified from U.S. Geological Survey, 2006).

Groundwater Level Graphs

- For each of the 17 groundwater wells, EPD has prepared a graph that shows monthly average groundwater levels from January 2019 through November 2019;
- 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.

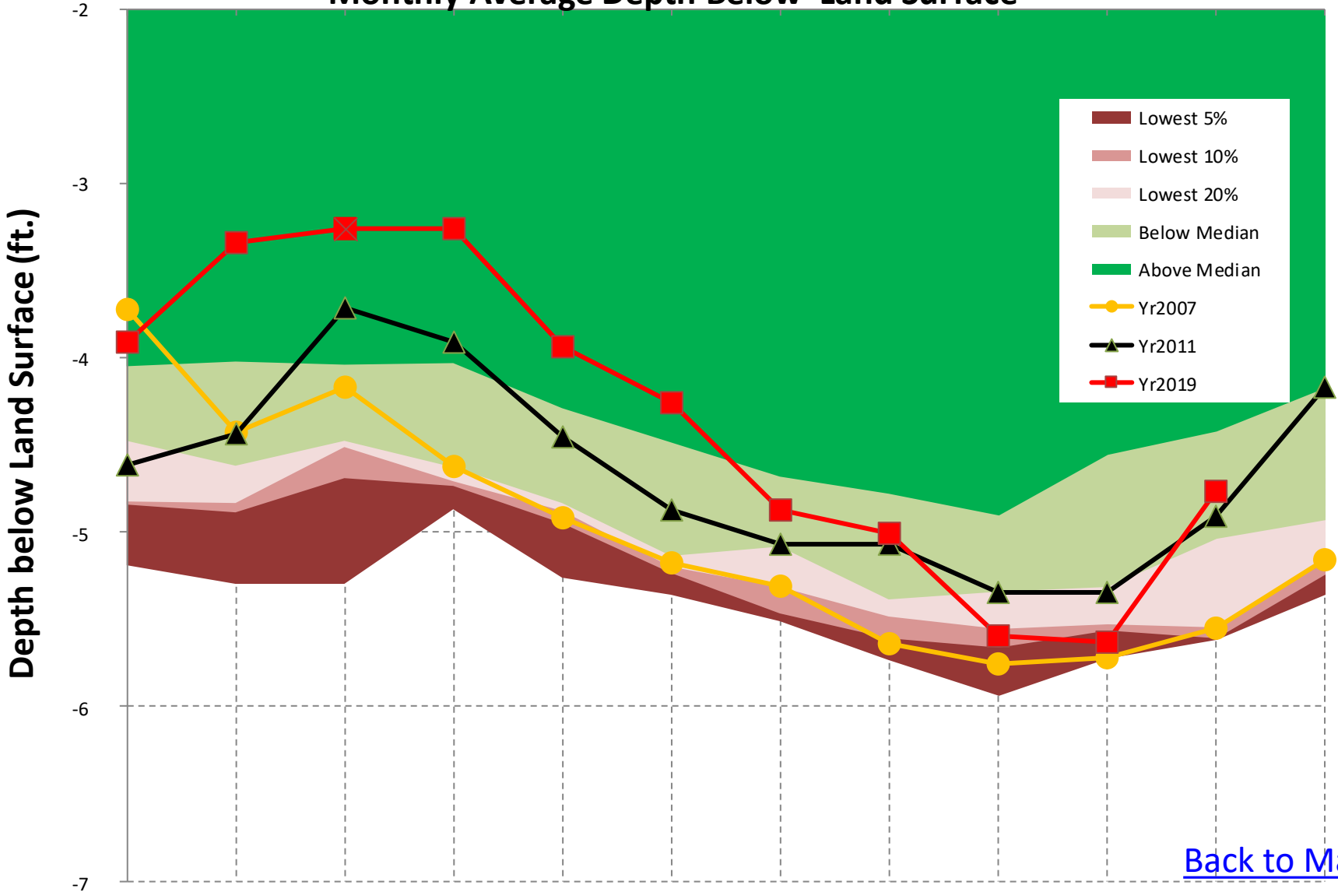
How to Read the Groundwater Level Graphs

Example: **Well #11, 09F520, Flint River Basin**

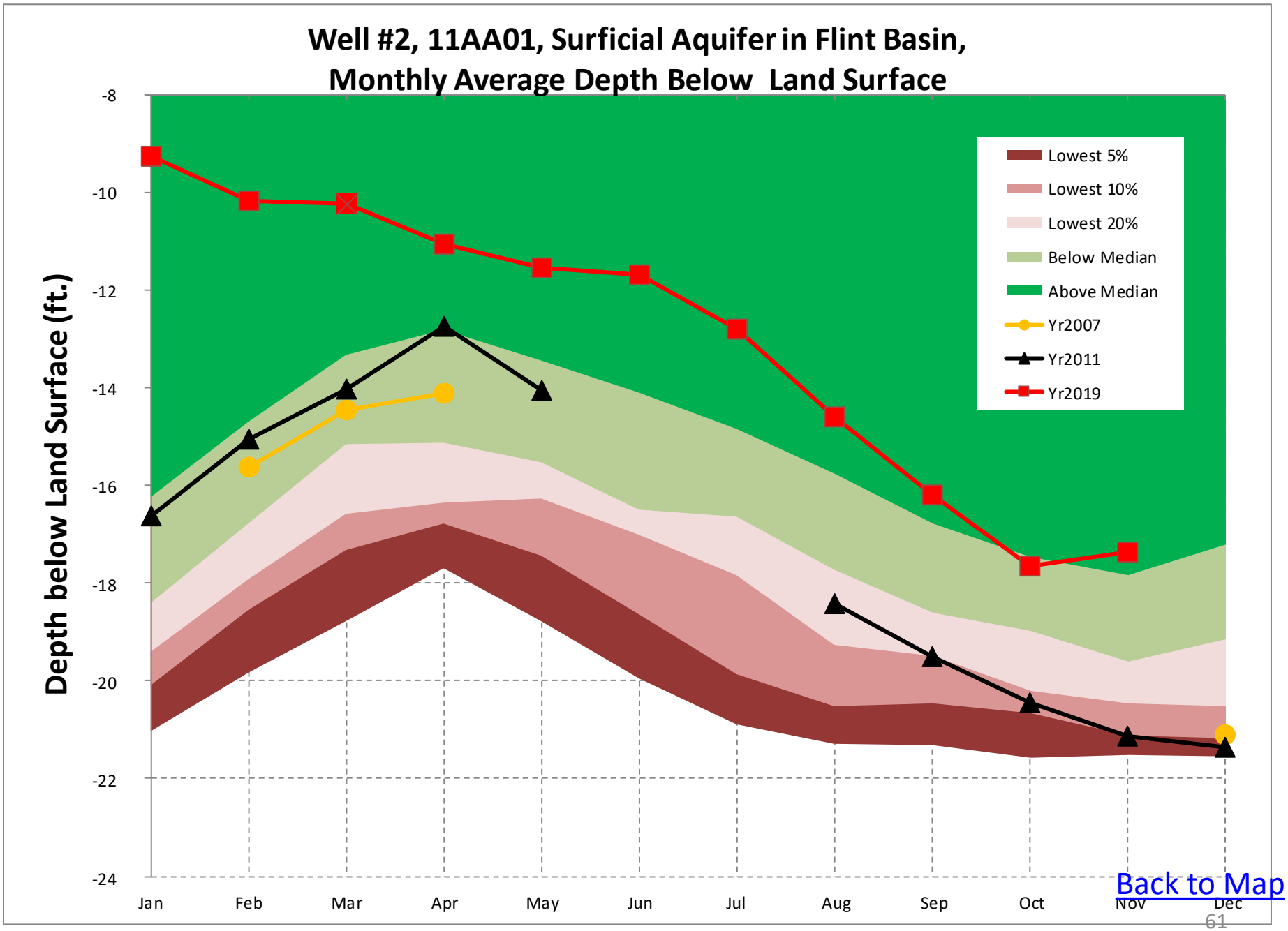
The groundwater level graph for Well #11, USGS 09F520 shows:

- The average monthly groundwater level for November 2019 was 48.7ft below land surface. The statistical composite of all historical data for this well shows that monthly average groundwater levels in November have historically been lower than November 2019 about 35% of the time; about 65% of the time in November they have been higher.
- The average monthly groundwater level in November 2011 was 50.9ft below land surface. The statistical composite of all historical data for this well shows that monthly average groundwater levels in November have historically been lower than November 2011 about 1% of the time; about 99 % of the time in November they have been higher.
- The average monthly groundwater level in November 2007 was 50.9ft below land surface. The statistical composite of all historical data for this well shows that monthly average groundwater levels in November have historically been lower than November 2007 about 1% of the time; about 99% of the time in November they have been higher.

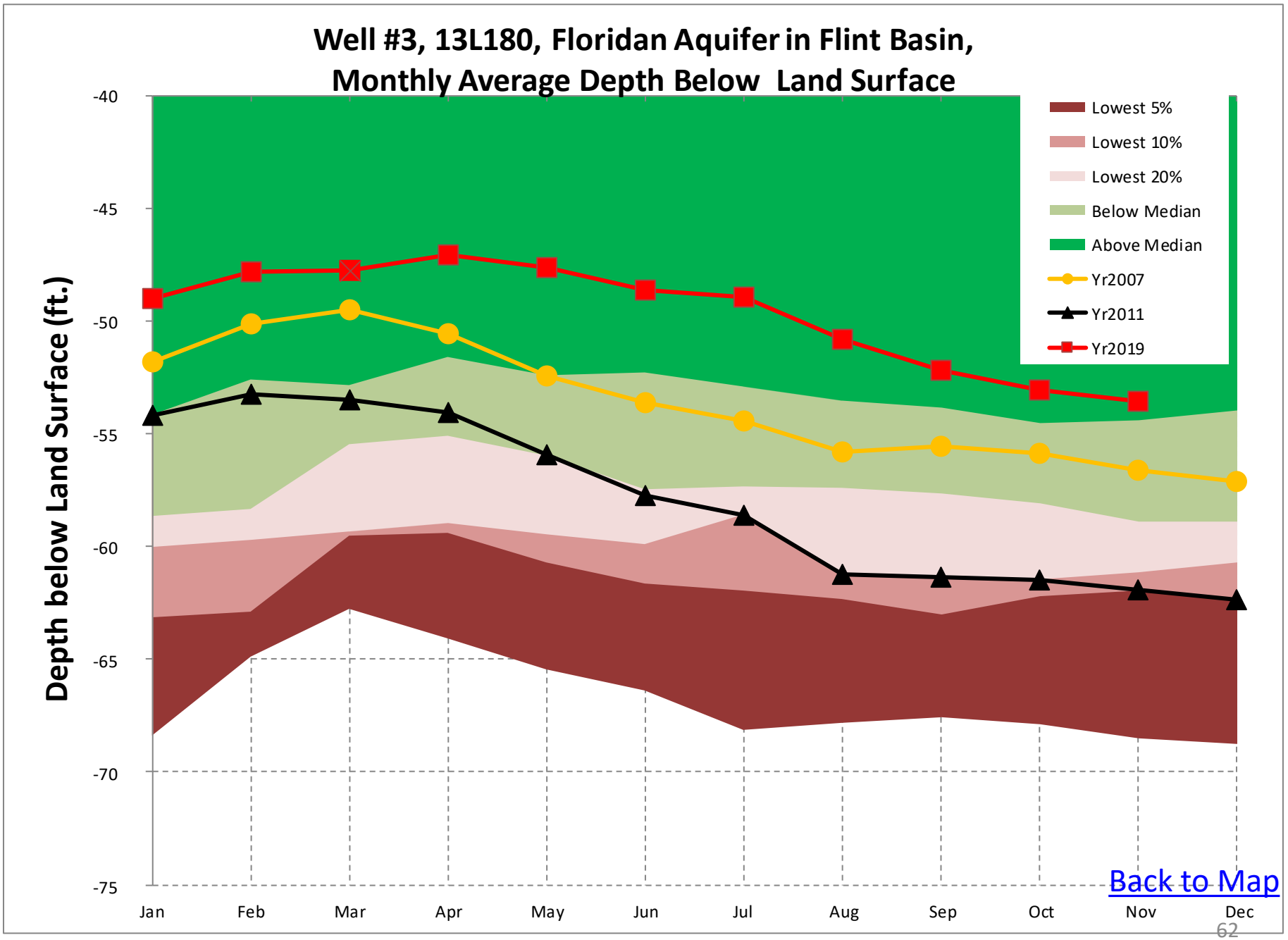
Well #1, 16MM03, Crystalline Rocks Aquifer in Chattahoochee Basin, Monthly Average Depth Below Land Surface



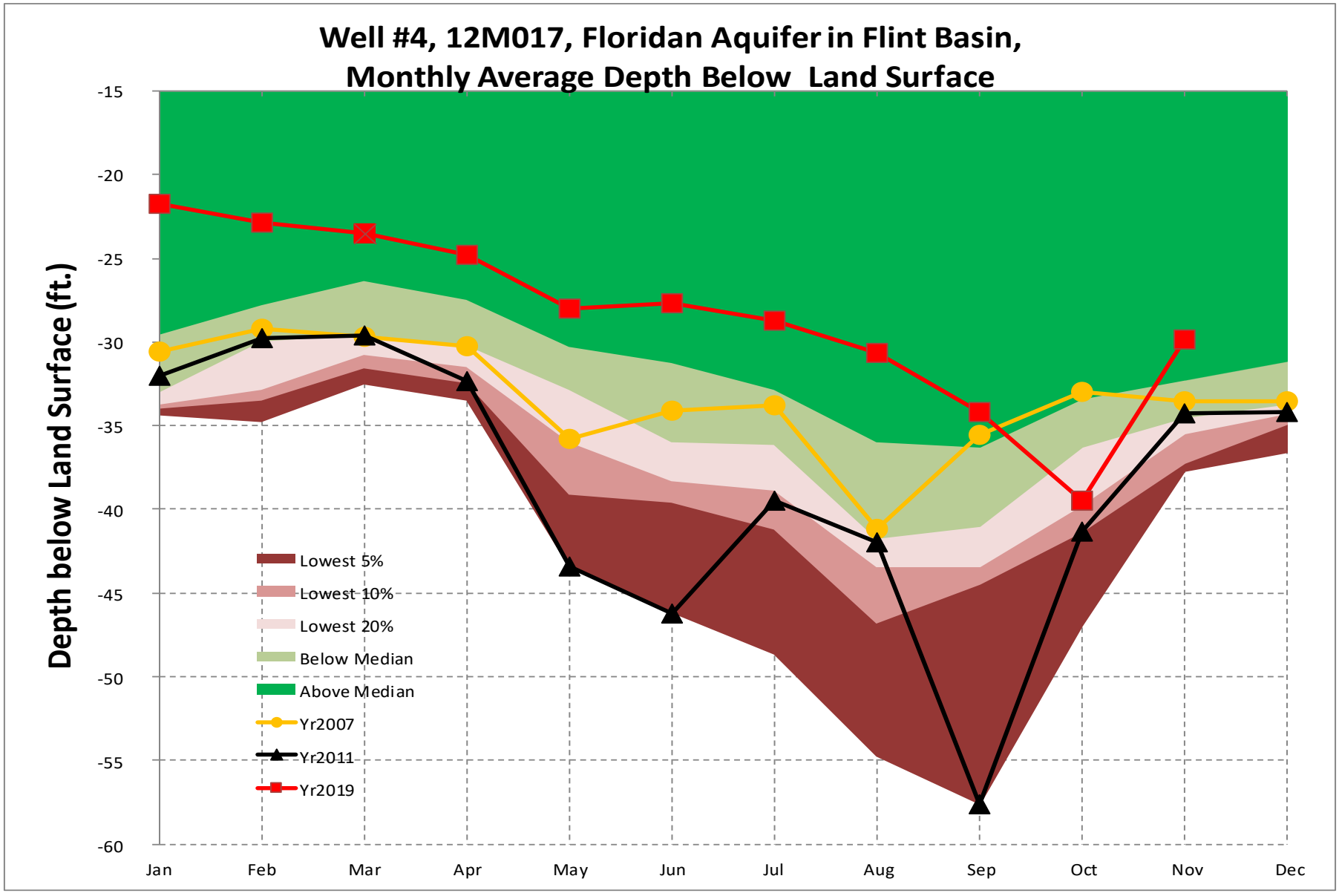
Back to Map


Well #2, 11AA01, Surficial Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-8
-10
-12
-14
-16
-18
-20
-22
-24
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

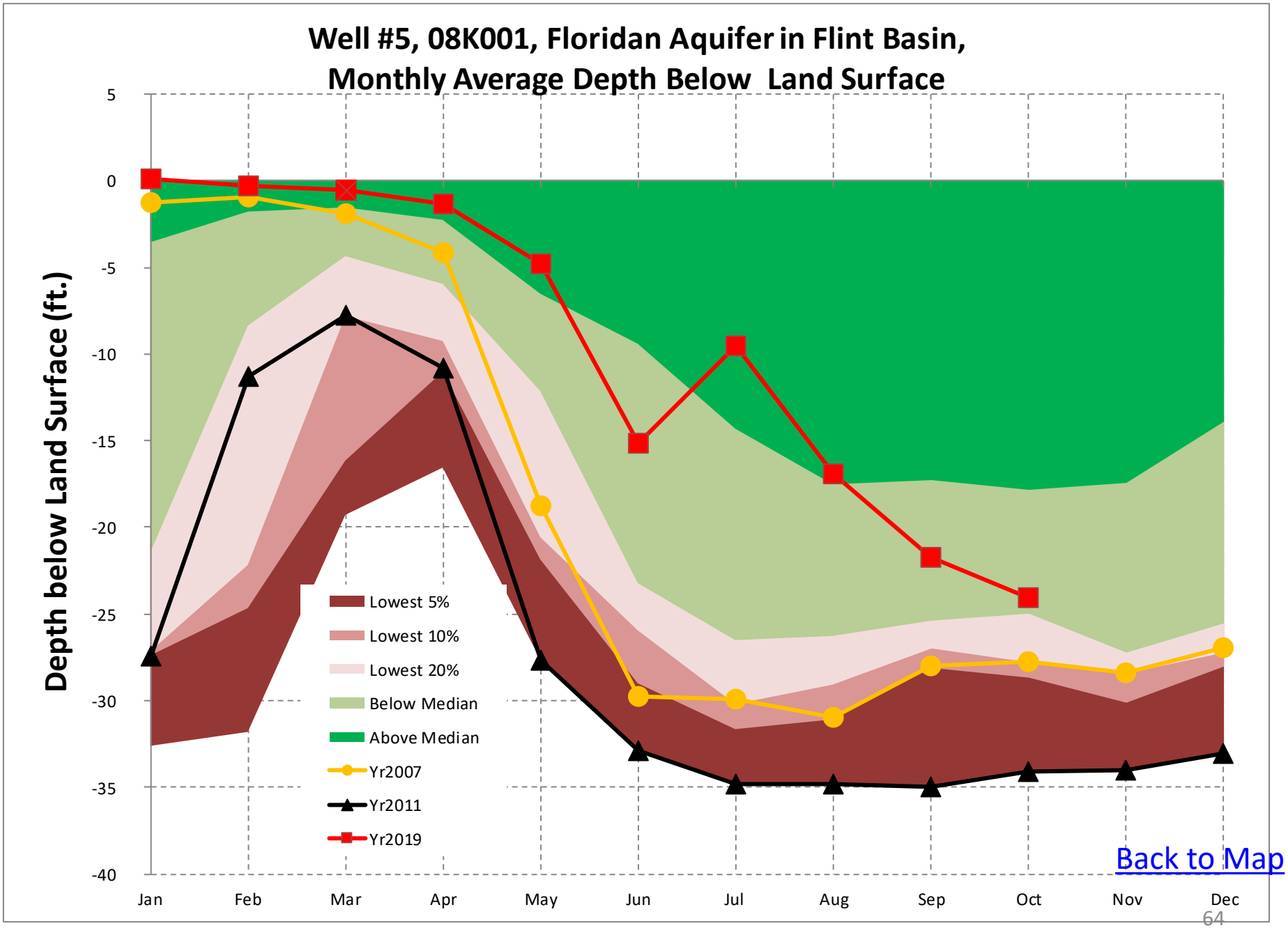
Back to Map


Well #3, 13L180, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-40
-45
-50
-55
-60
-65
-70
-75
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

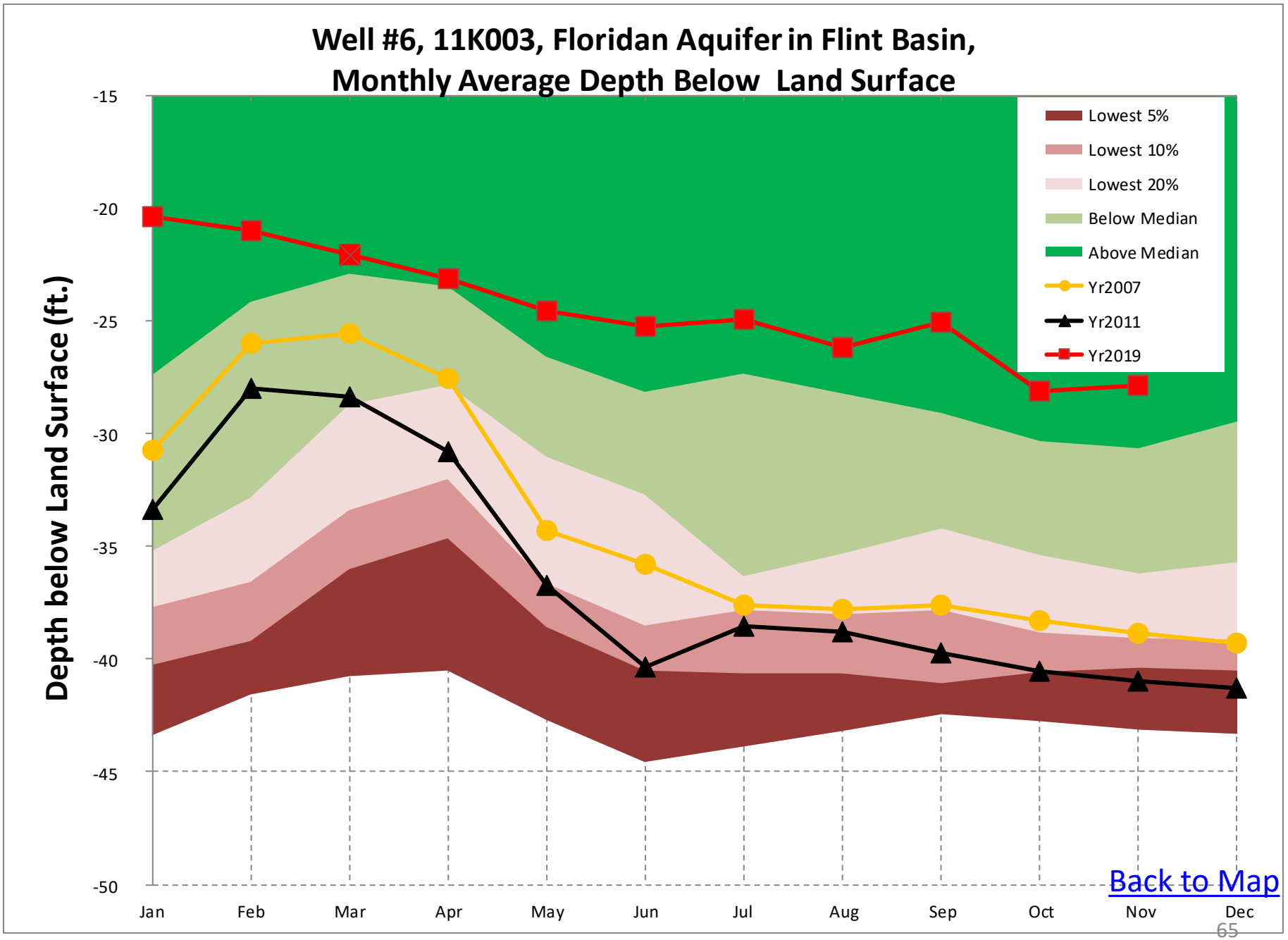
Back to Map


Well #4, 12M017, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-15
-20
-25
-30
-35
-40
-45
-50
-55
-60
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

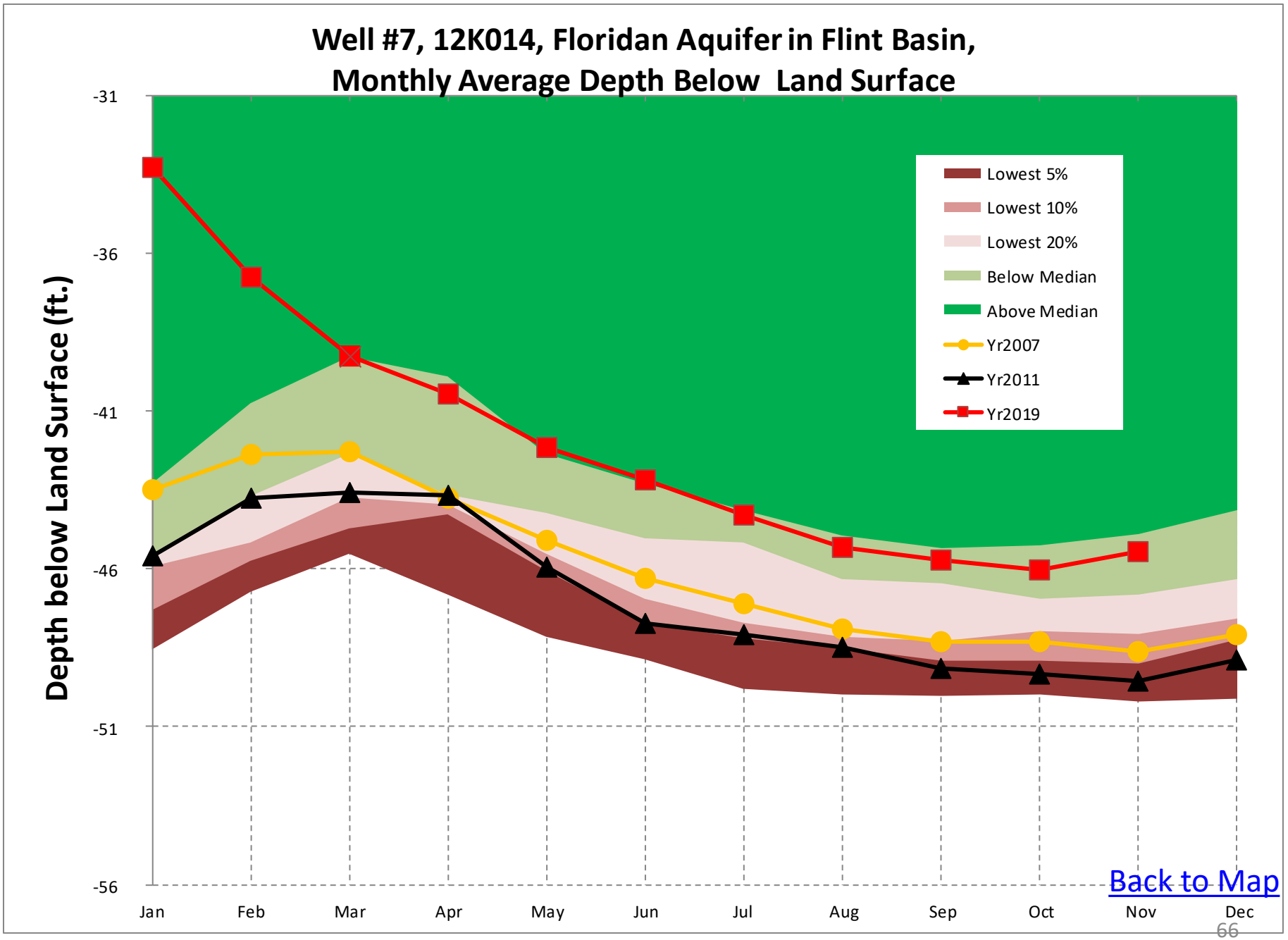
Back to Map


Well #5, 08K001, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
5
0
-5
-10
-15
-20
-25
-30
-35
-40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

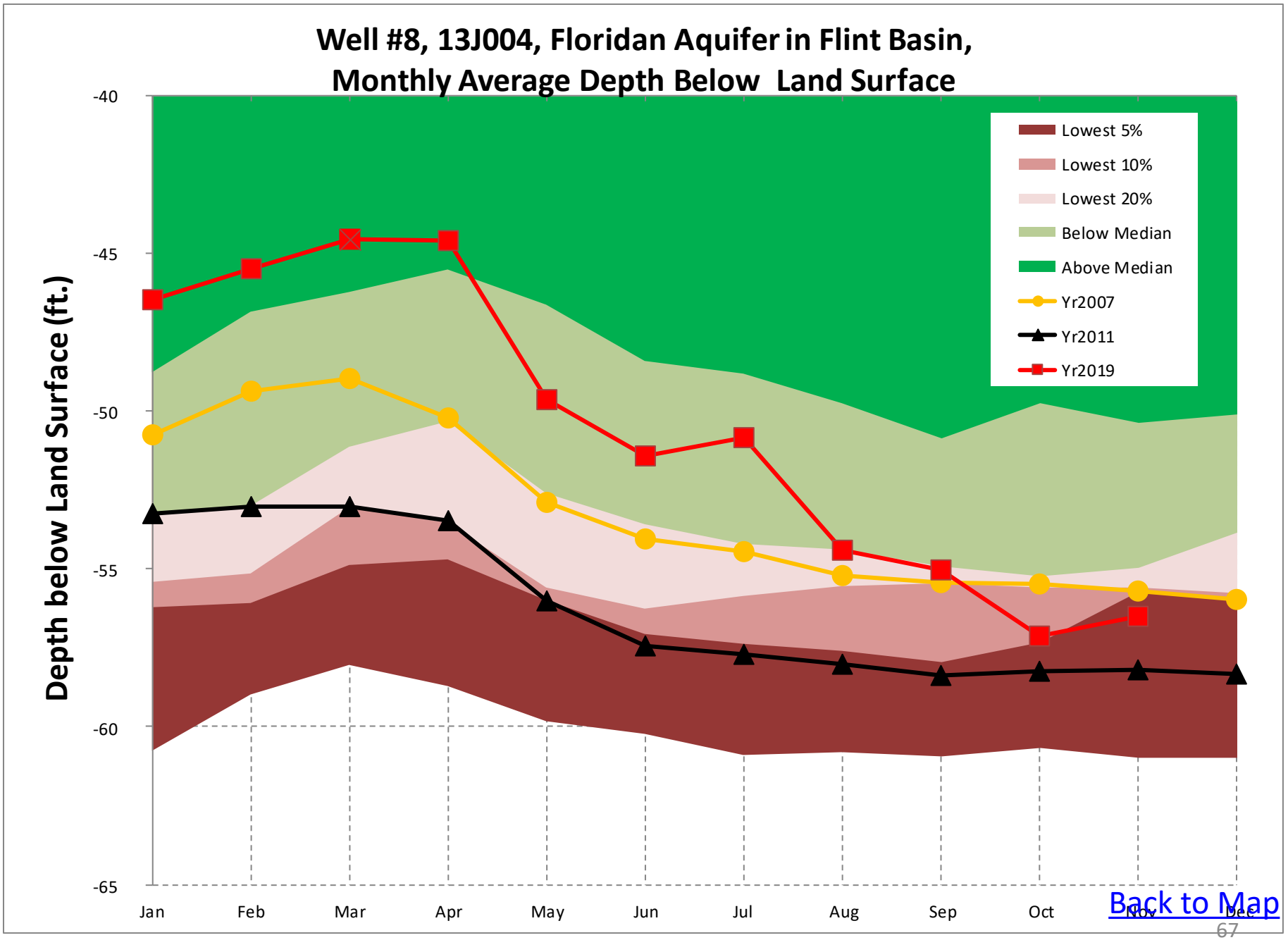
Back to Map


Well #6, 11K003, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-15
-20
-25
-30
-35
-40
-45
-50
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

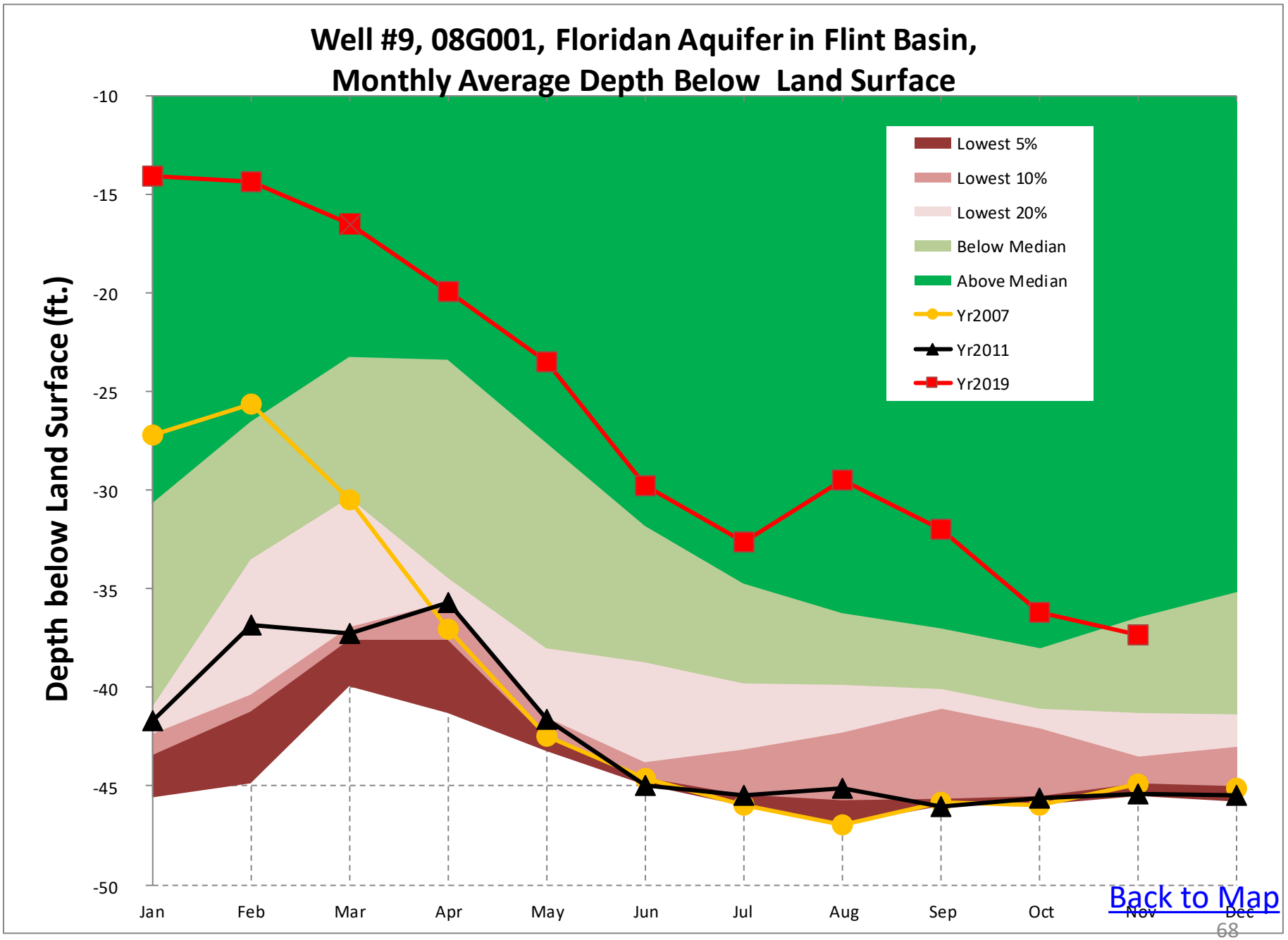
Back to Map


Well #7, 12K014, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-31
-36
-41
-46
-51
-56
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

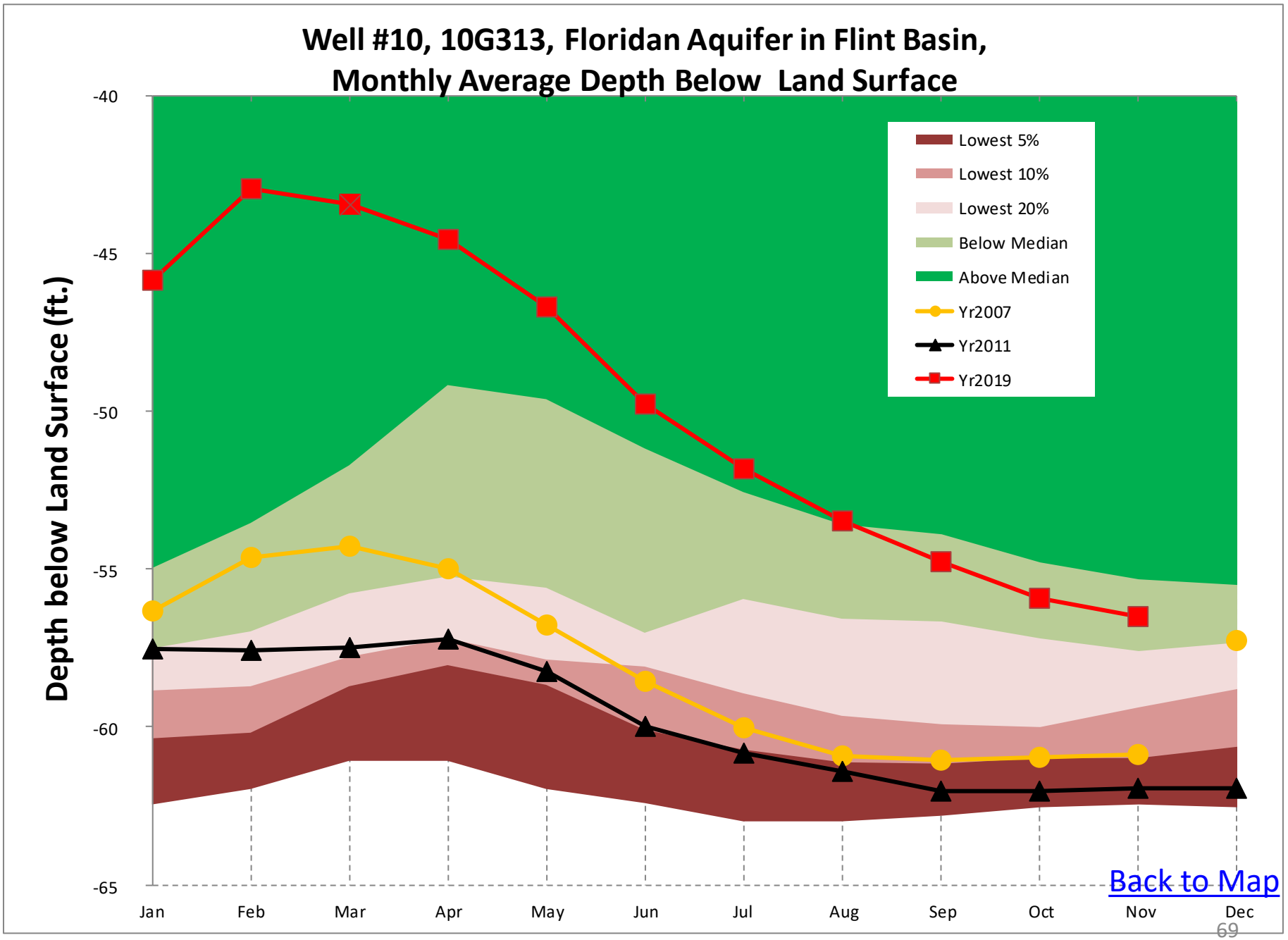
Back to Map


Well #8, 13J004, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-40
-45
-50
-55
-60
-65
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

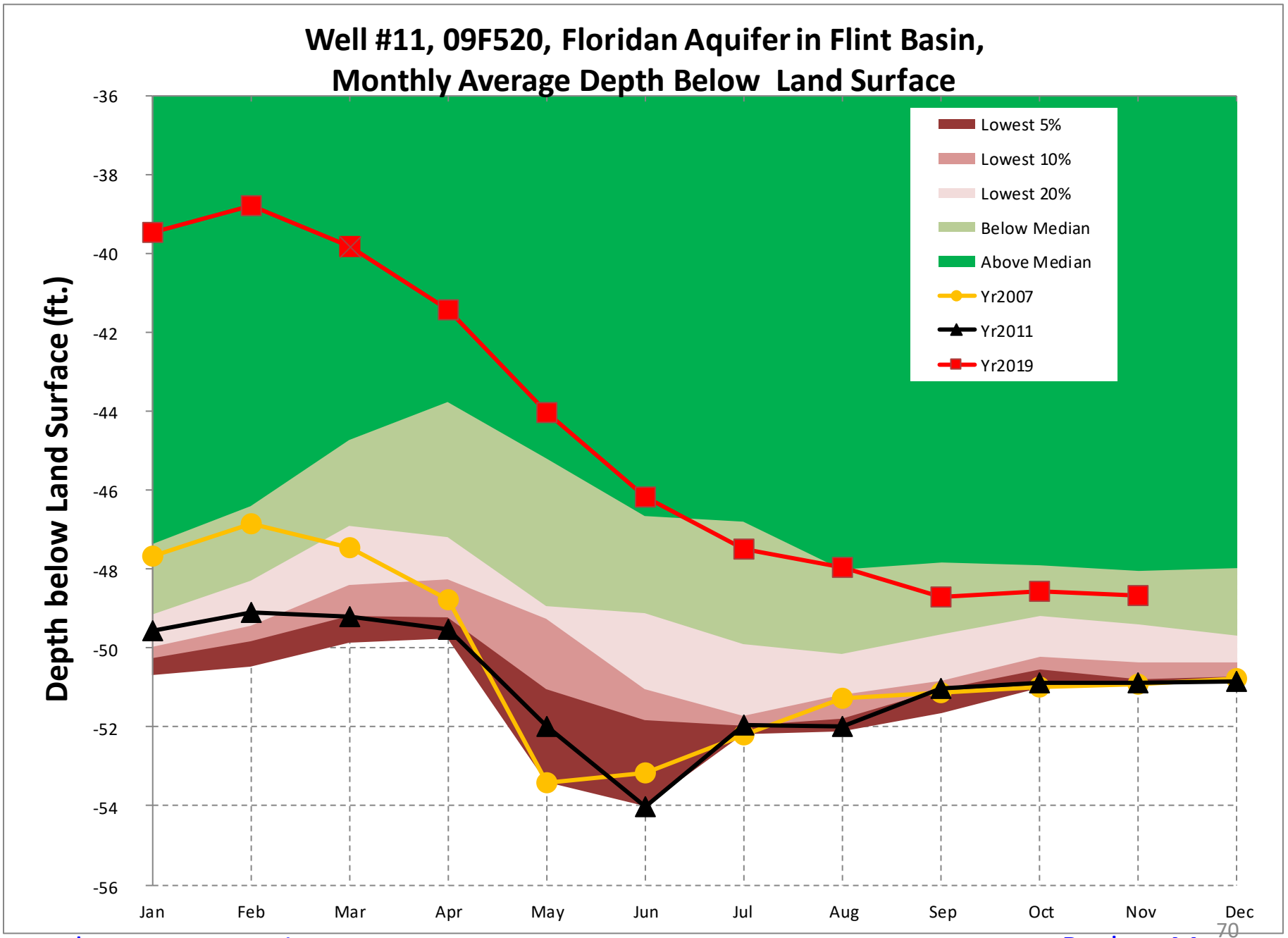
Back to Map


Well #9, 08G001, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-10
-15
-20
-25
-30
-35
-40
-45
-50
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

Back to Map

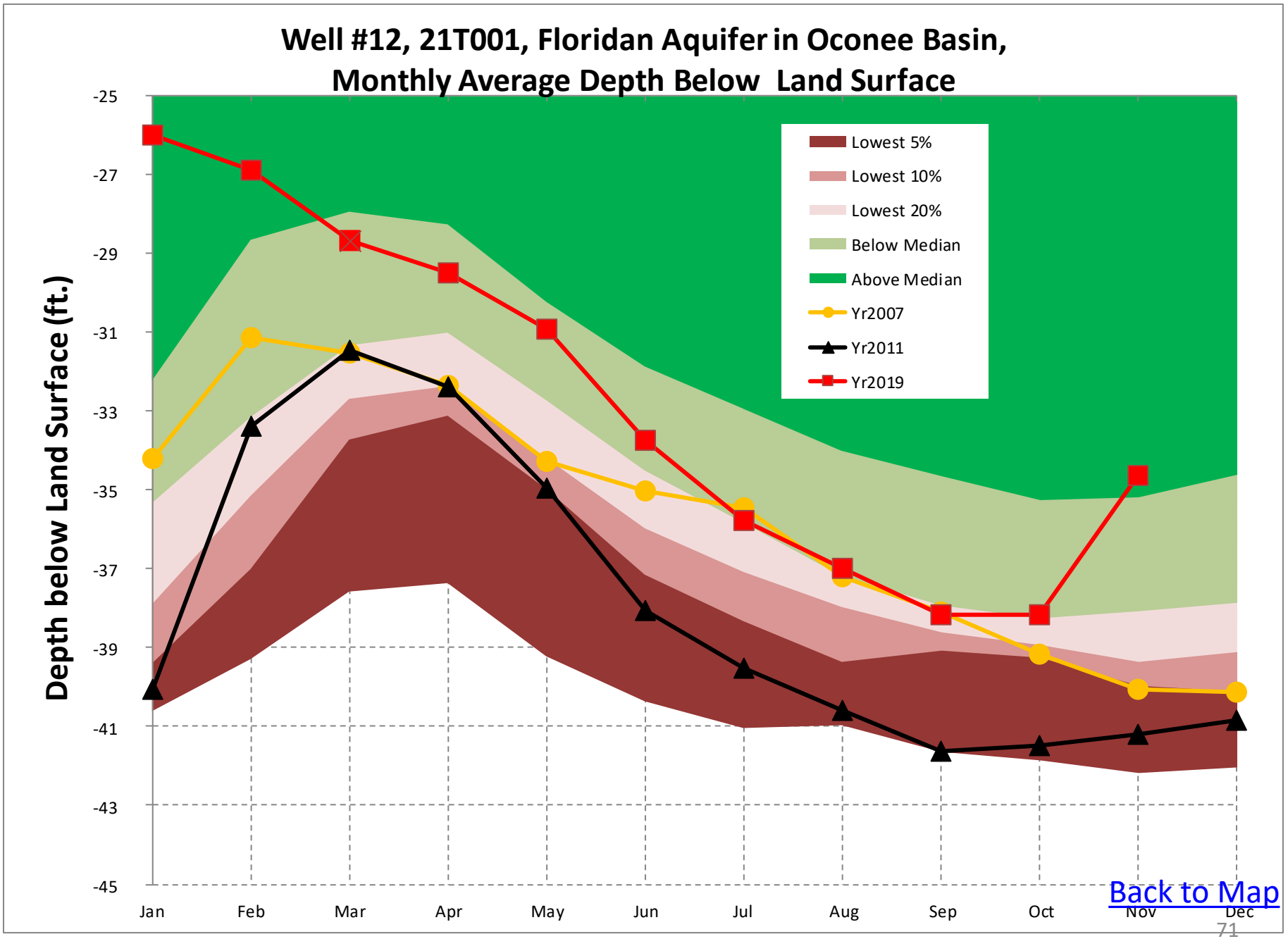

Well #10, 10G313, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-40
-45
-50
-55
-60
-65
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

Back to Map

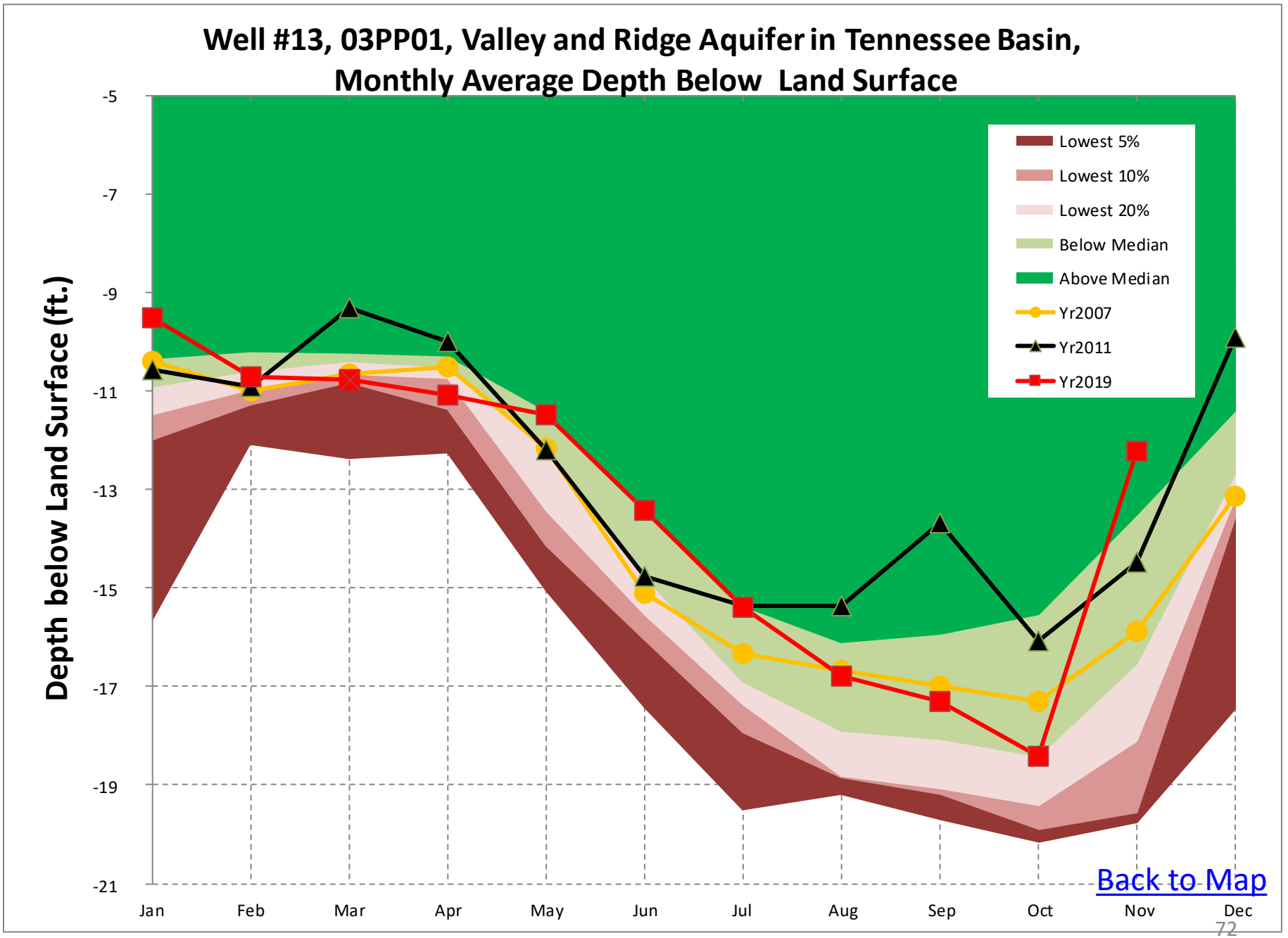


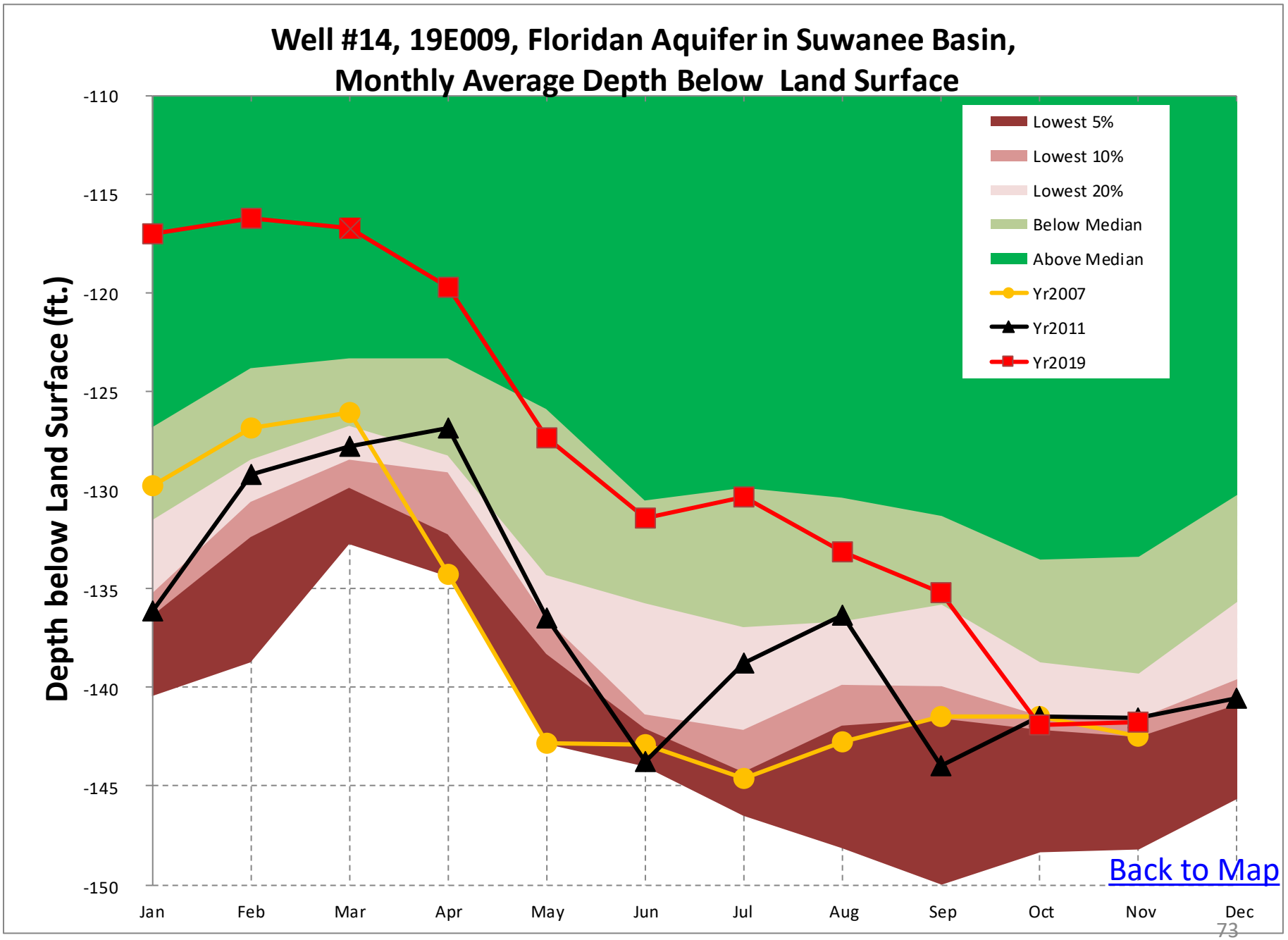
Back to Interpretation

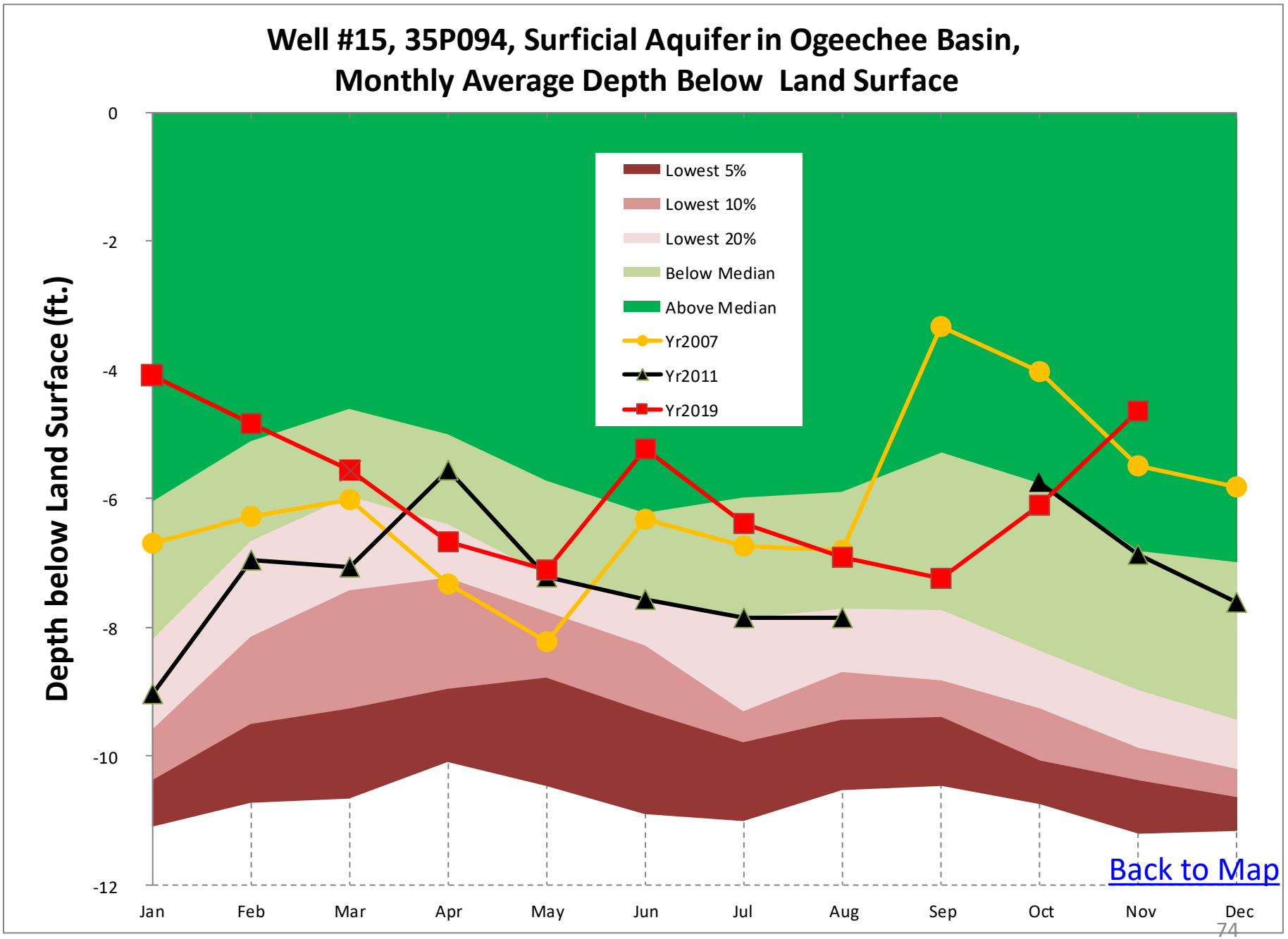
Back to Map

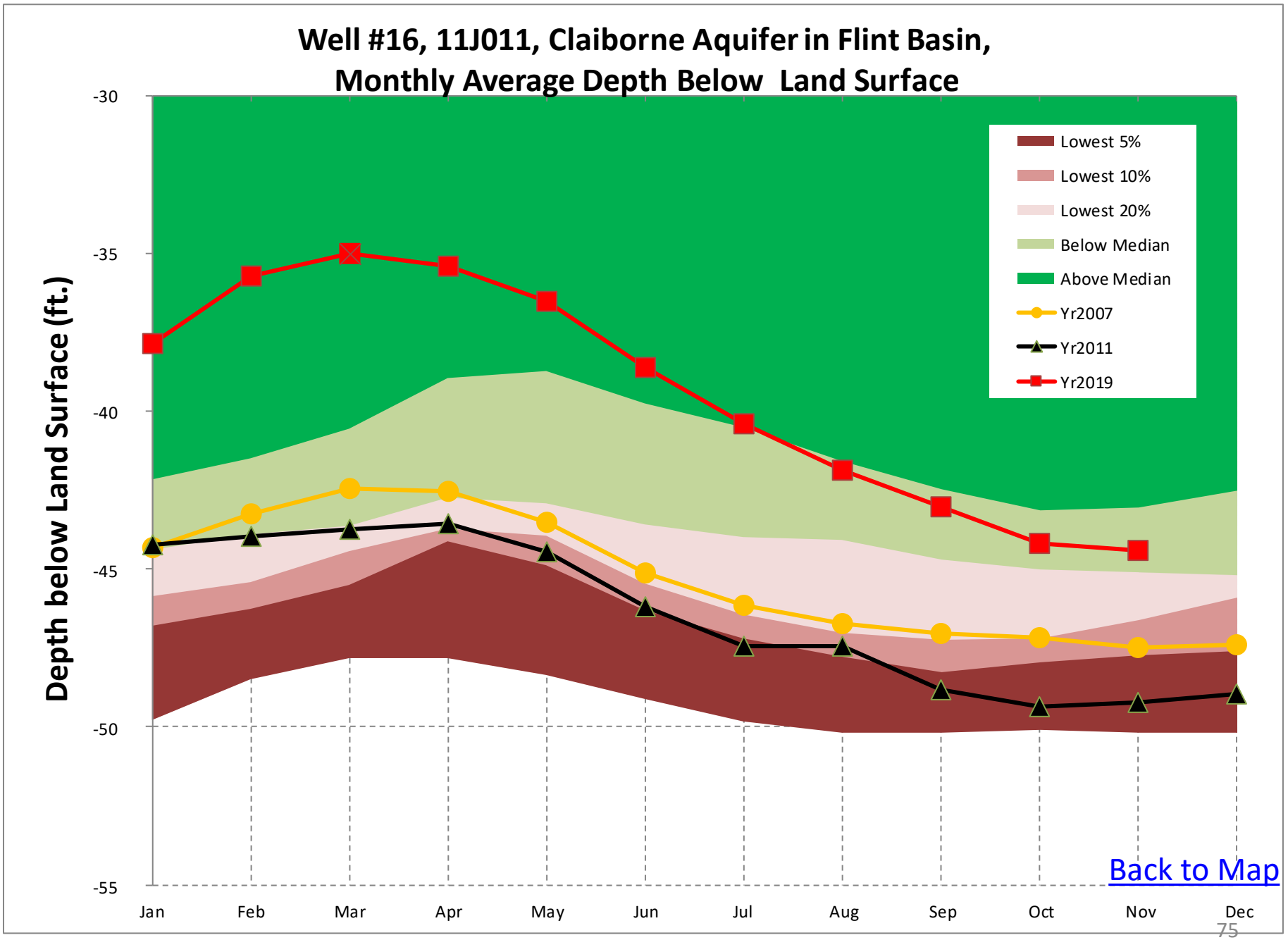

Well #12, 21T001, Floridan Aquifer in Oconee Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-25
-27
-29
-31
-33
-35
-37
-39
-41
-43
-45
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019

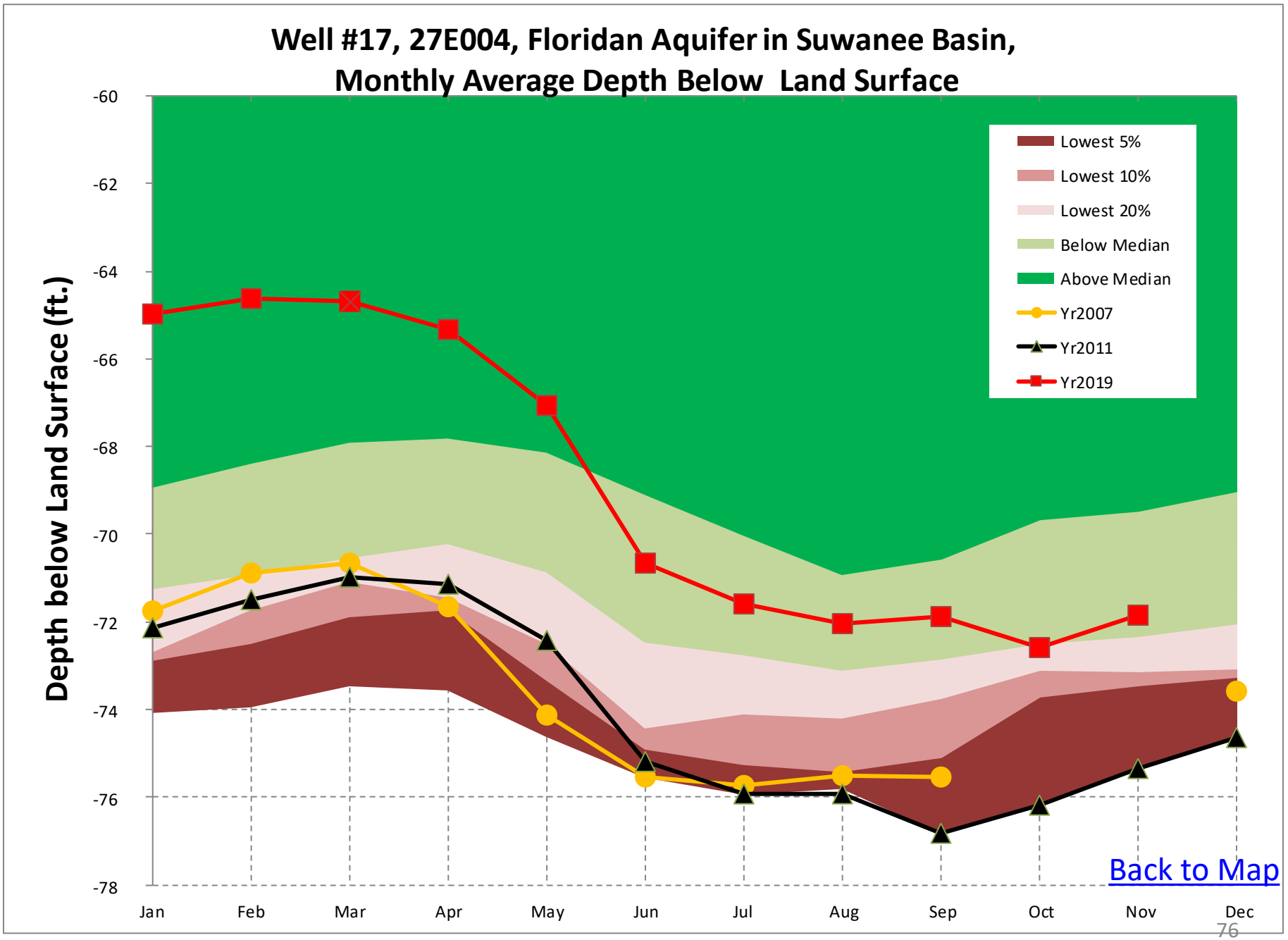
Back to Map


Well #13, 03PP01, Valley and Ridge Aquifer in Tennessee Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-5
-7
-9
-11
-13
-15
-17
-19
-21
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019
Back to Map


Well #14, 19E009, Floridan Aquifer in Suwanee Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-110
-115
-120
-125
-130
-135
-140
-145
-150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019
Back to Map


Well #15, 35P094, Surficial Aquifer in Ogeechee Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
0
-2
-4
-6
-8
-10
-12
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019
Back to Map


Well #16, 11J011, Claiborne Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-30
-35
-40
-45
-50
-55
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019
Back to Map


Well #17, 27E004, Floridan Aquifer in Suwanee Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-60
-62
-64
-66
-68
-70
-72
-74
-76
-78
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2019
Back to Map

Reservoir Levels

Data Source:
US Army Corps of Engineers

Coosa Basin
1. Carters
2. Allatoona

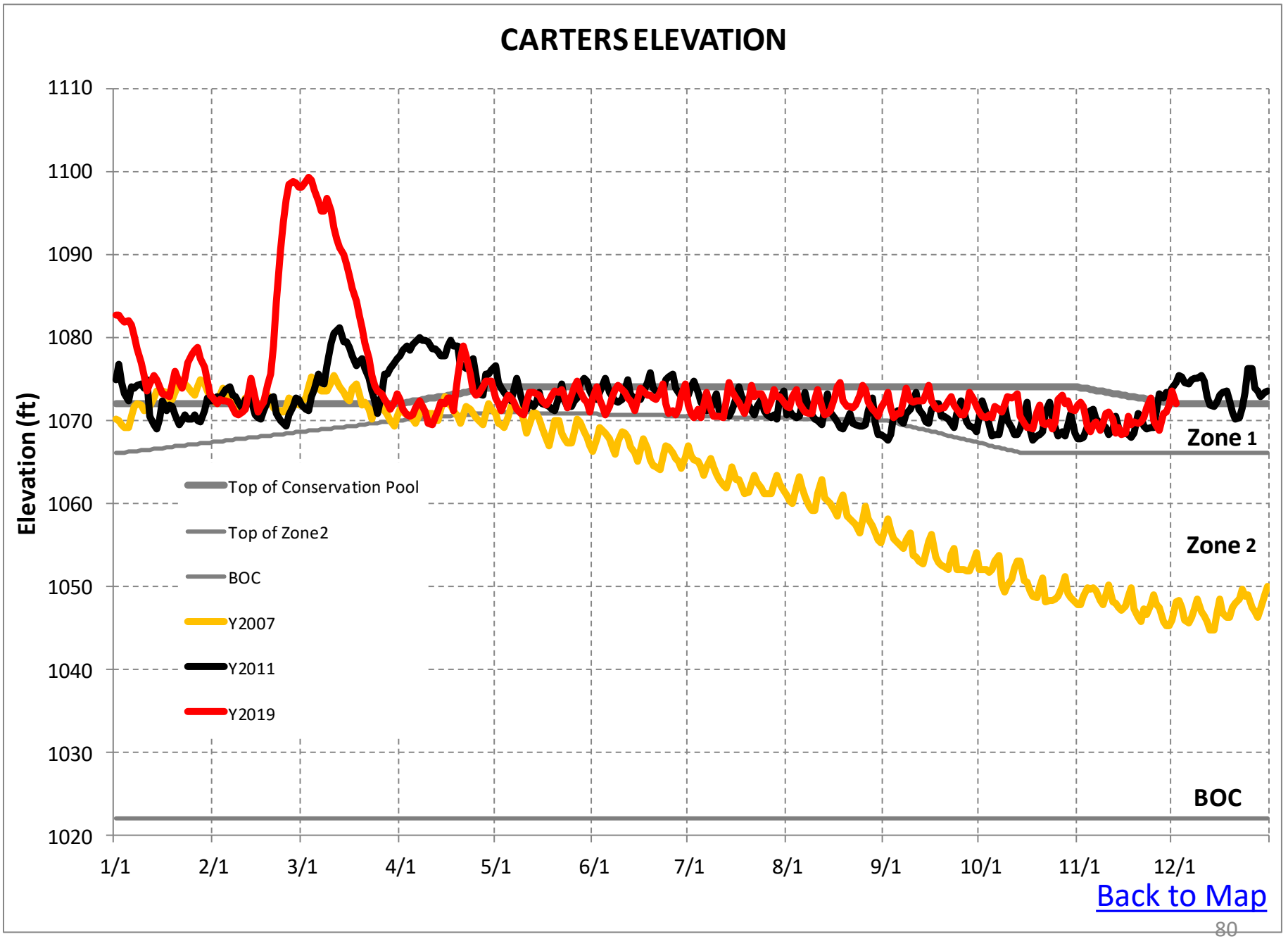
Chattahoochee Basin
3. Lanier
4. West Point
5. W.F. George

Savannah Basin
6. Hartwell
7. Thurmond

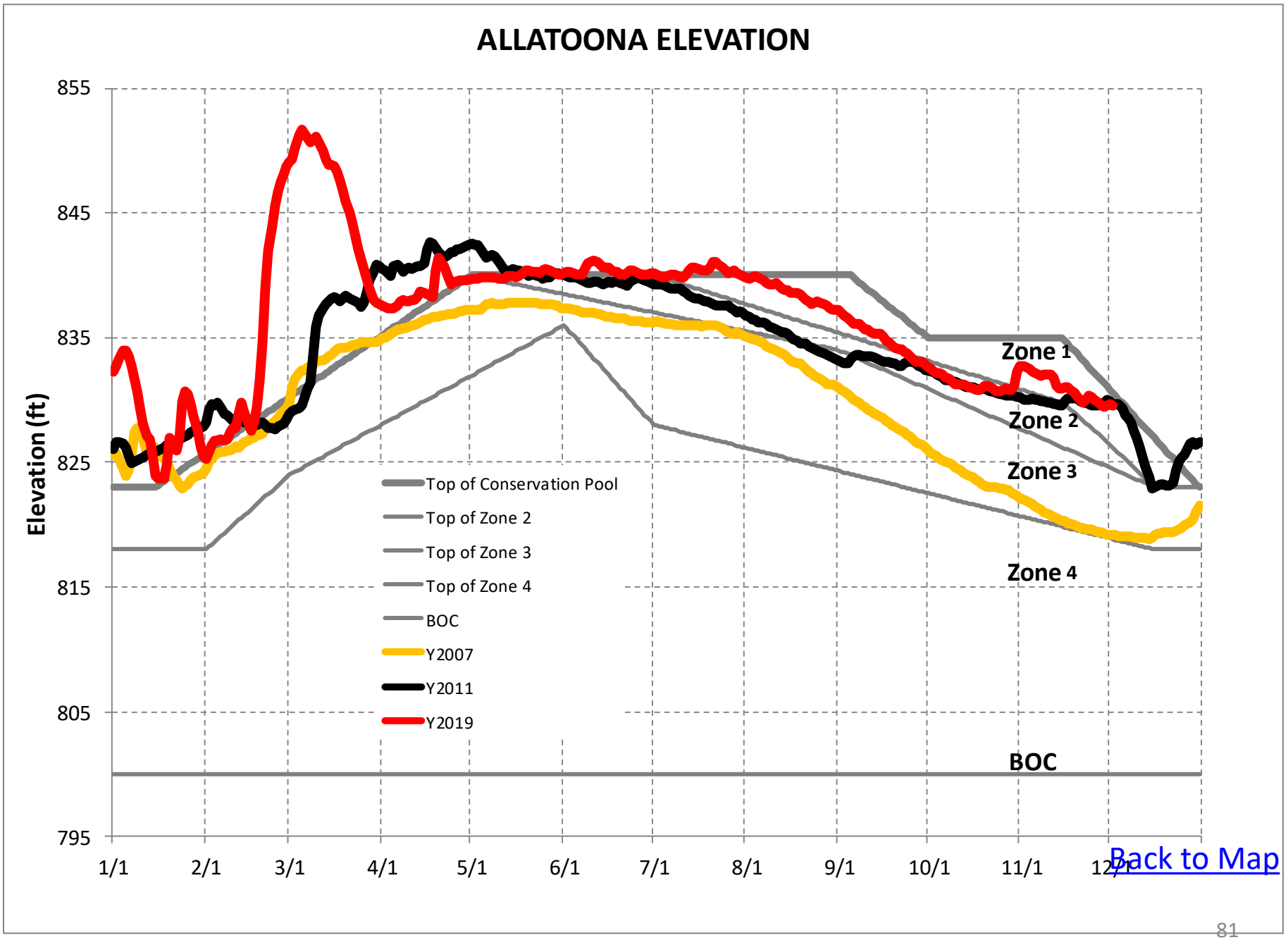
EPD monitors the water levels of seven reservoirs to assess drought conditions.

Reservoir Elevation Graphs

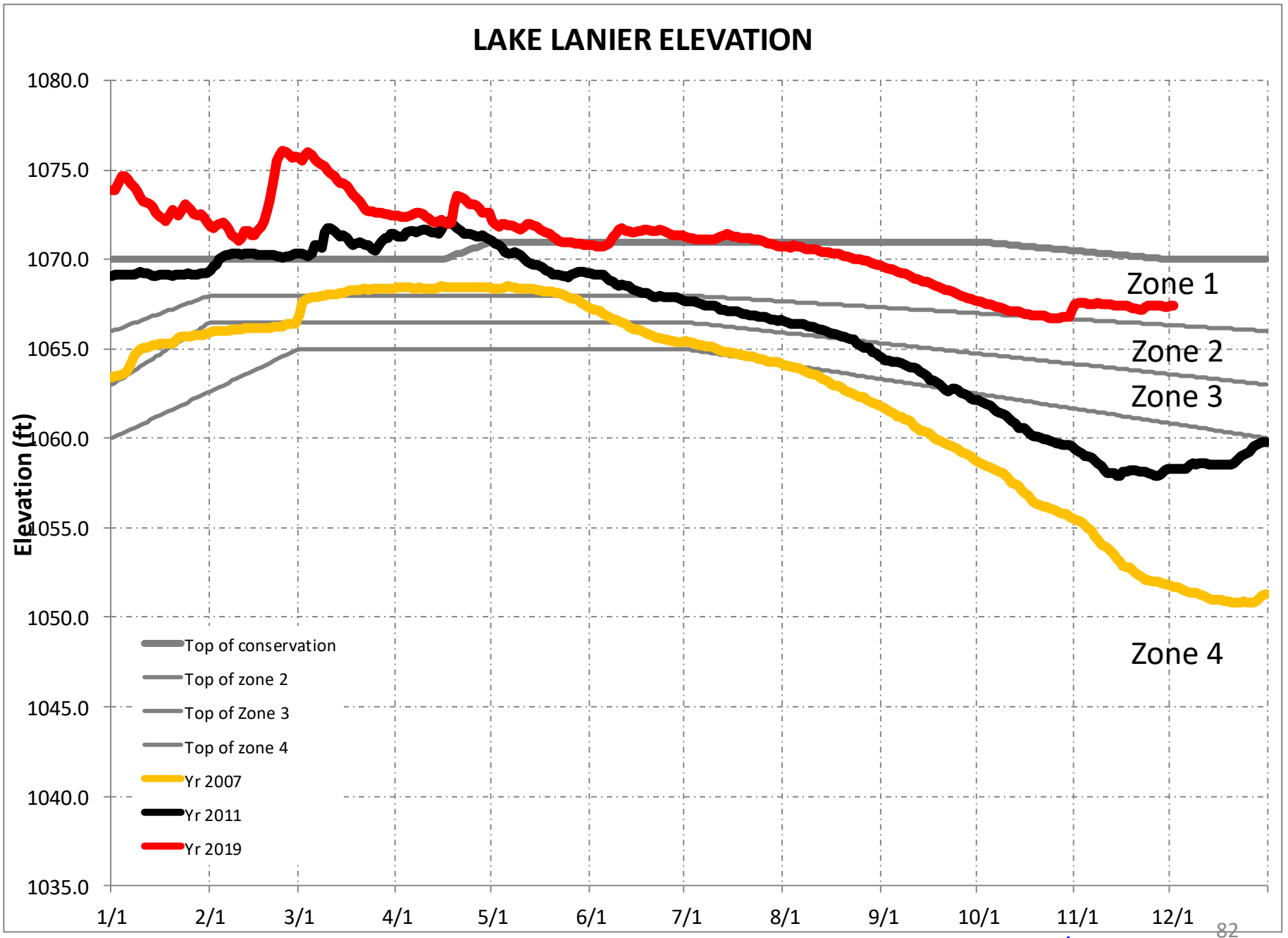
- The following graphs show the reservoir elevation curves for January 2019 through November 2019.
- Each graph also shows the Action Zone Divides (or Levels) for each reservoir
  - Zone 1 is the top layer of the conservation pool
  - Zone 2 is the layer below Zone 1
  - Zone 4 is the lowest layer in the conservation pool
  - There is no conservation storage below the bottom of Zone 4
- To put 2019 reservoir elevations into perspective, elevations for 2007 and 2011 are also shown.


CARTERS ELEVATION
Elevation (ft)
1110
1100
1090
1080
1070
1060
1050
1040
1030
1020
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Top of Conservation Pool
Top of Zone2
BOC
Y2007
Y2011
Y2019
Zone 1
Zone 2
BOC

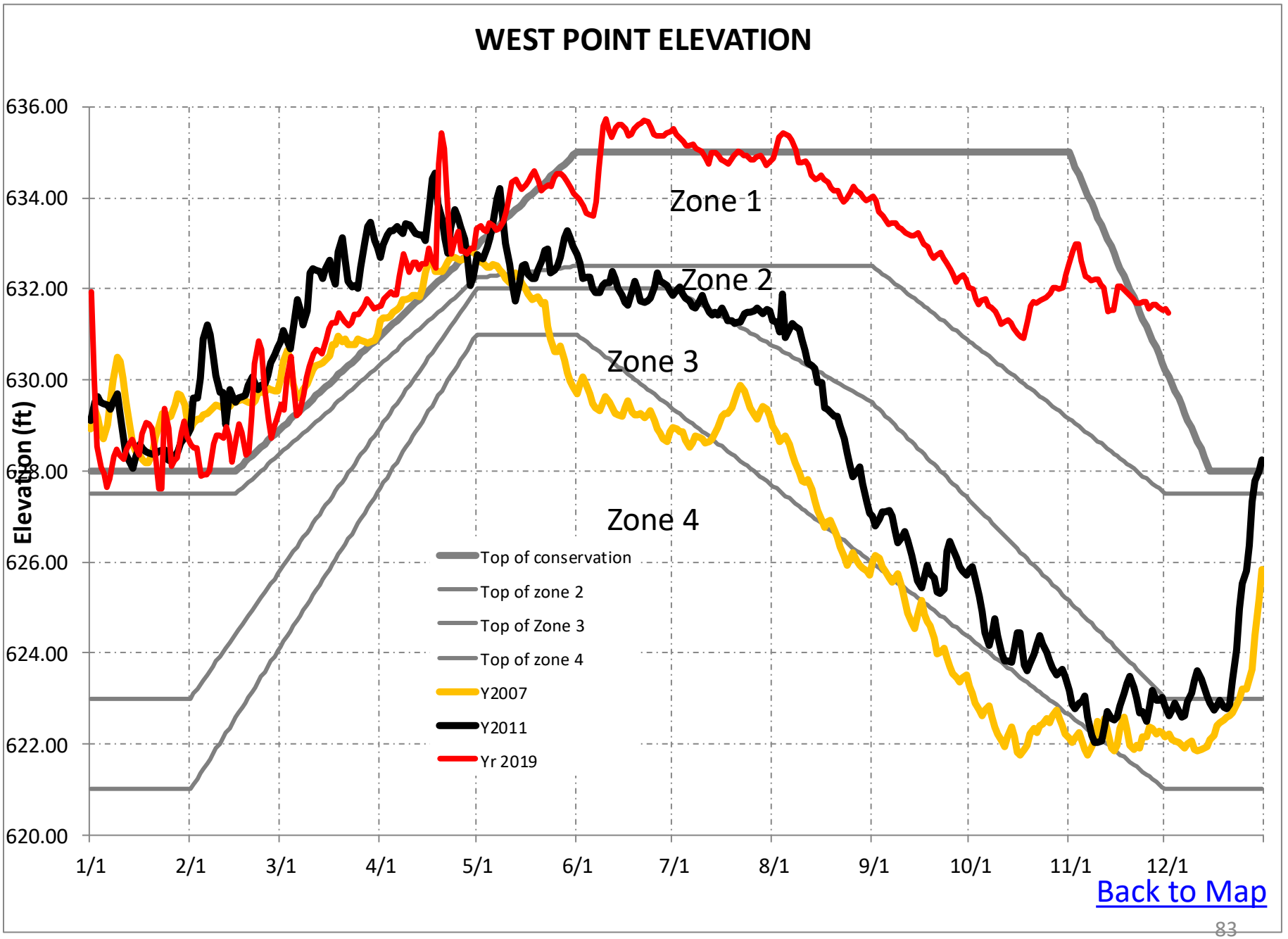
Back to Map


ALLATOONA ELEVATION
Elevation (ft)
855
845
835
825
815
805
795
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Top of Conservation Pool
Top of Zone 2
Top of Zone 3
Top of Zone 4
BOC
Y2007
Y2011
Y2019
Zone 1
Zone 2
Zone 3
Zone 4
BOC

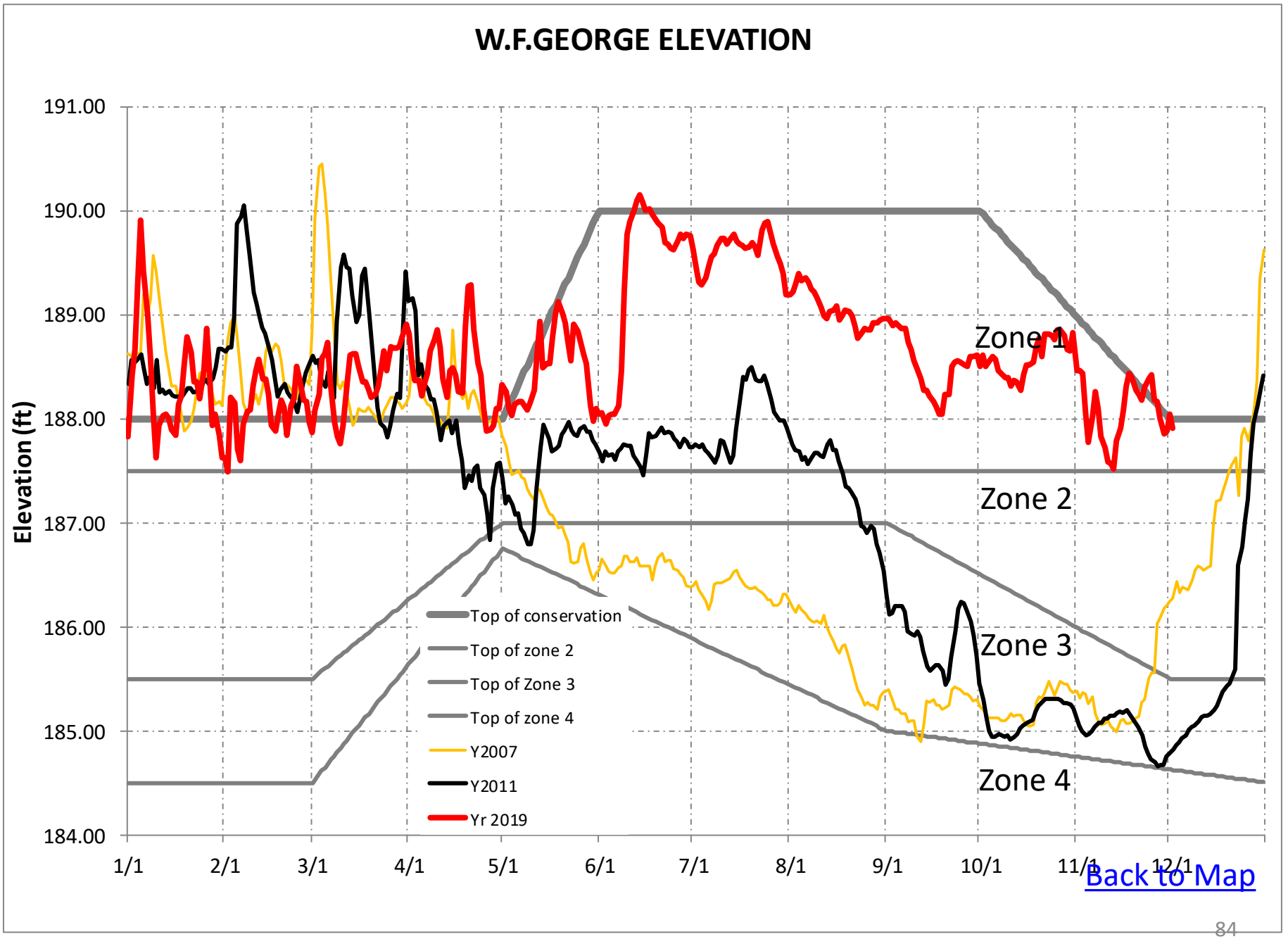
Back to Map


LAKE LANIER ELEVATION
Elevation (ft)
1080.0
1075.0
1070.0
1065.0
1060.0
1055.0
1050.0
1045.0
1040.0
1035.0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Zone 1
Zone 2
Zone 3
Zone 4
Top of conservation
Top of zone 2
Top of Zone 3
Top of zone 4
Yr 2007
Yr 2011
Yr 2019

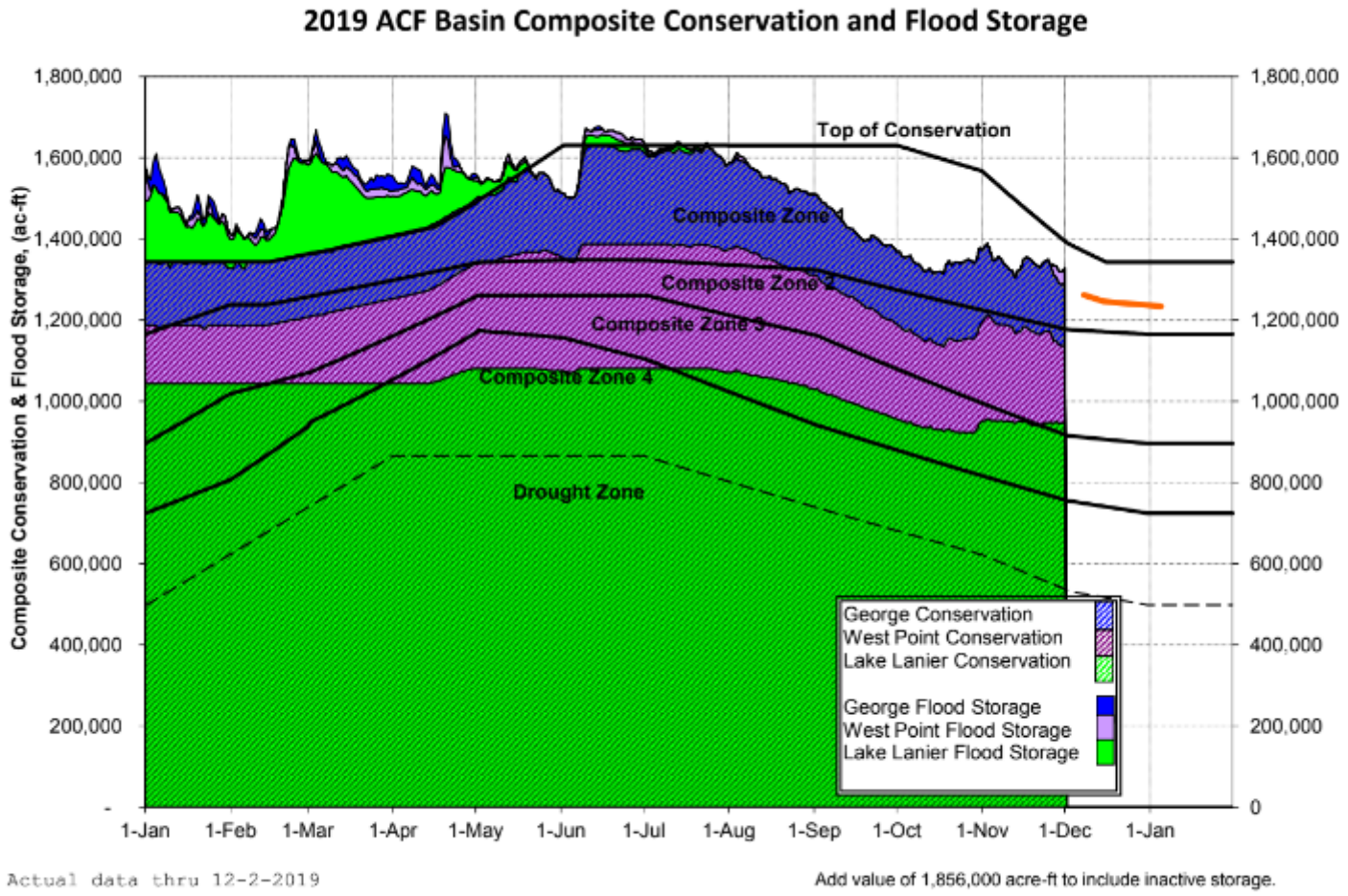
Back to Map


WEST POINT ELEVATION
636.00
634.00
632.00
630.00
628.00
626.00
624.00
622.00
620.00
Elevation (ft)
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Zone 1
Zone 2
Zone 3
Zone 4
Top of conservation
Top of zone 2
Top of Zone 3
Top of zone 4
Y2007
Y2011
Yr 2019

Back to Map

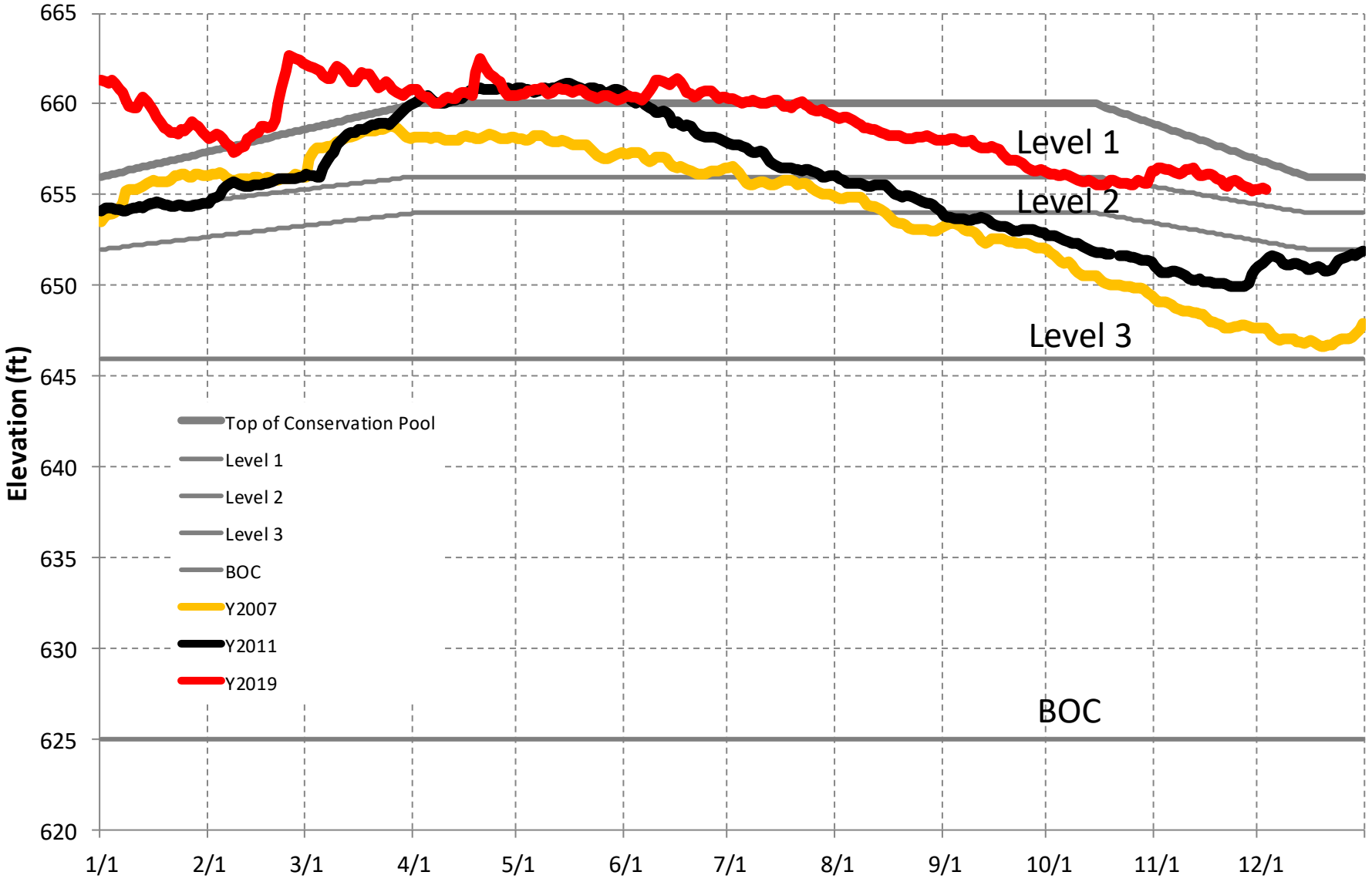

W.F.GEORGE ELEVATION
Elevation (ft)
191.00
190.00
189.00
188.00
187.00
186.00
185.00
184.00
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Zone 1
Zone 2
Zone 3
Zone 4
Top of conservation
Top of zone 2
Top of Zone 3
Top of zone 4
Y2007
Y2011
Yr 2019

Back to Map



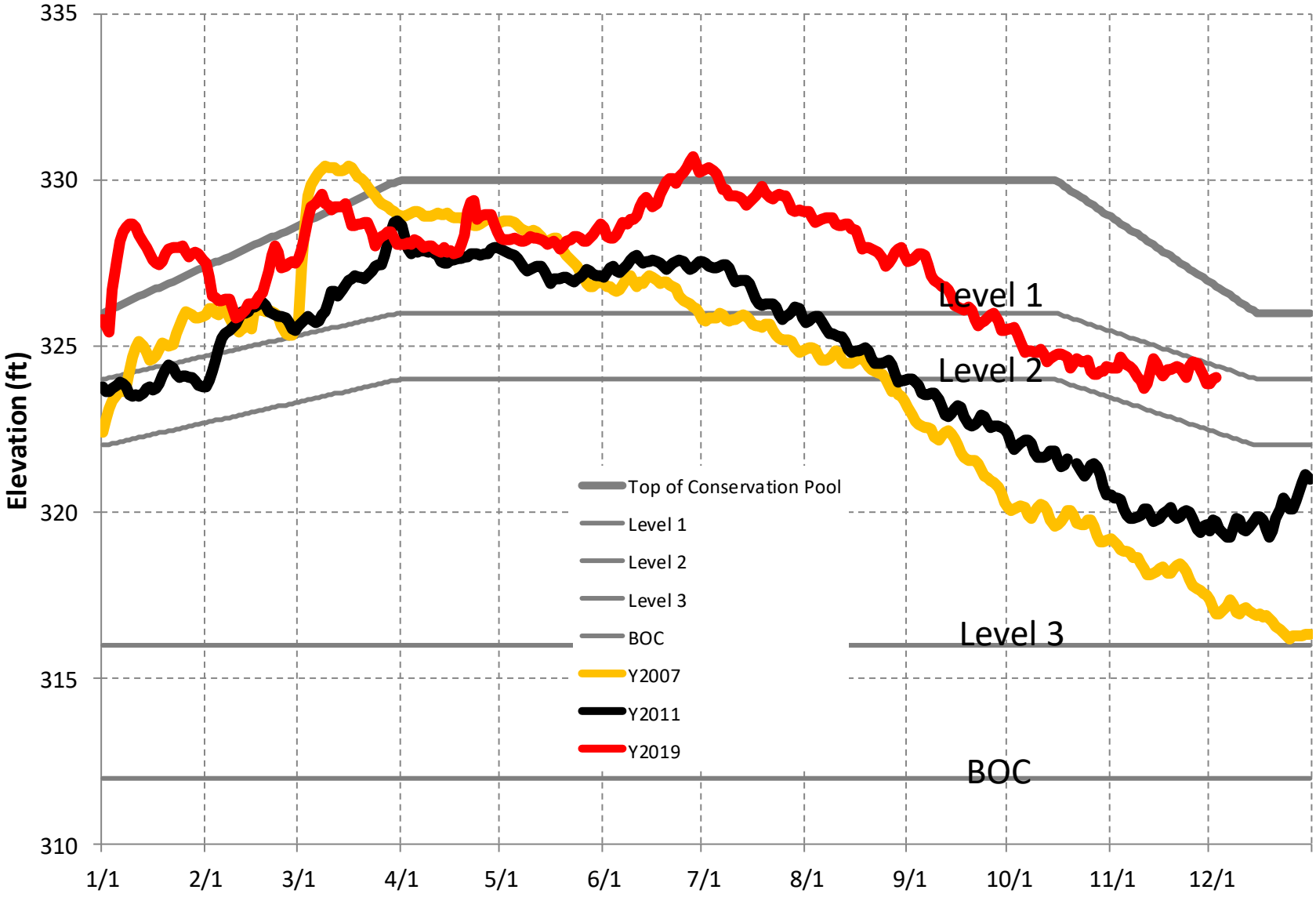
Compiled by USACE.

LAKE HARTWELL ELEVATION



Back to Map

LAKE CLARKS HILL (THURMOND) ELEVATION

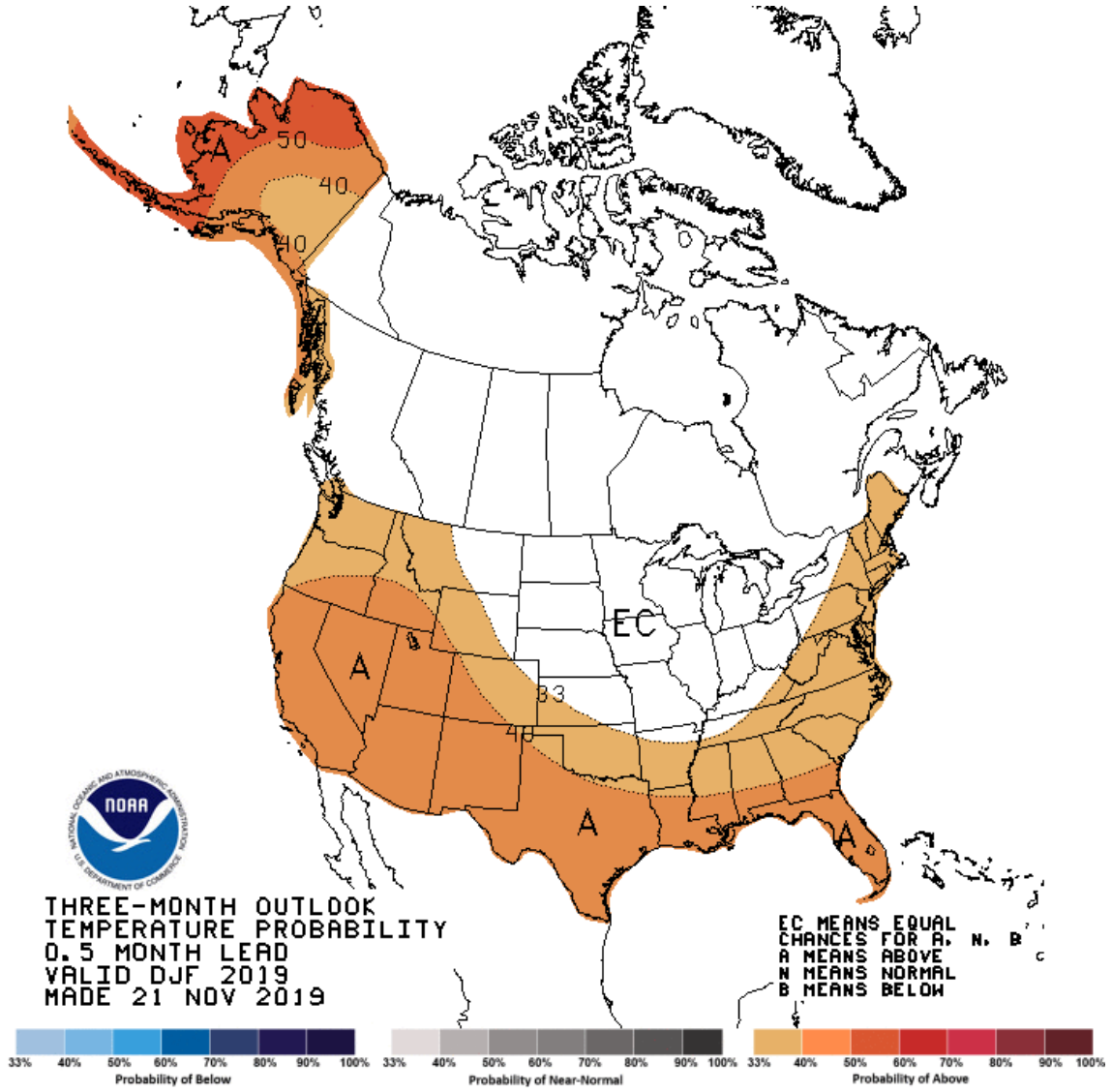


Back to Map

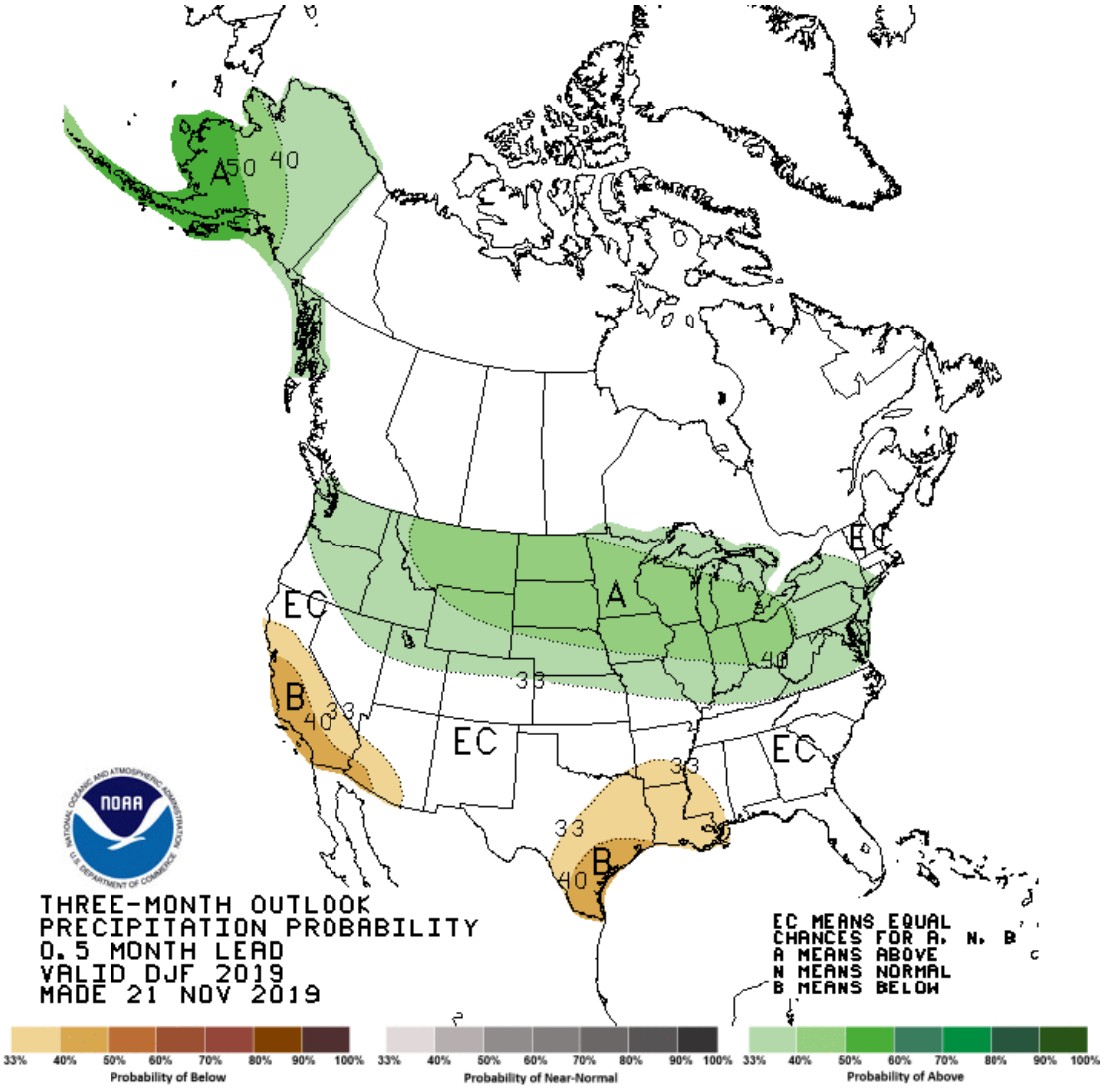
Climate Prediction Center 3-month Temperature and Precipitation Probability Outlook and Seasonal Drought Outlook

Data Source:
http://www.cpc.ncep.noaa.gov/

Temperature Outlook



Precipitation Outlook

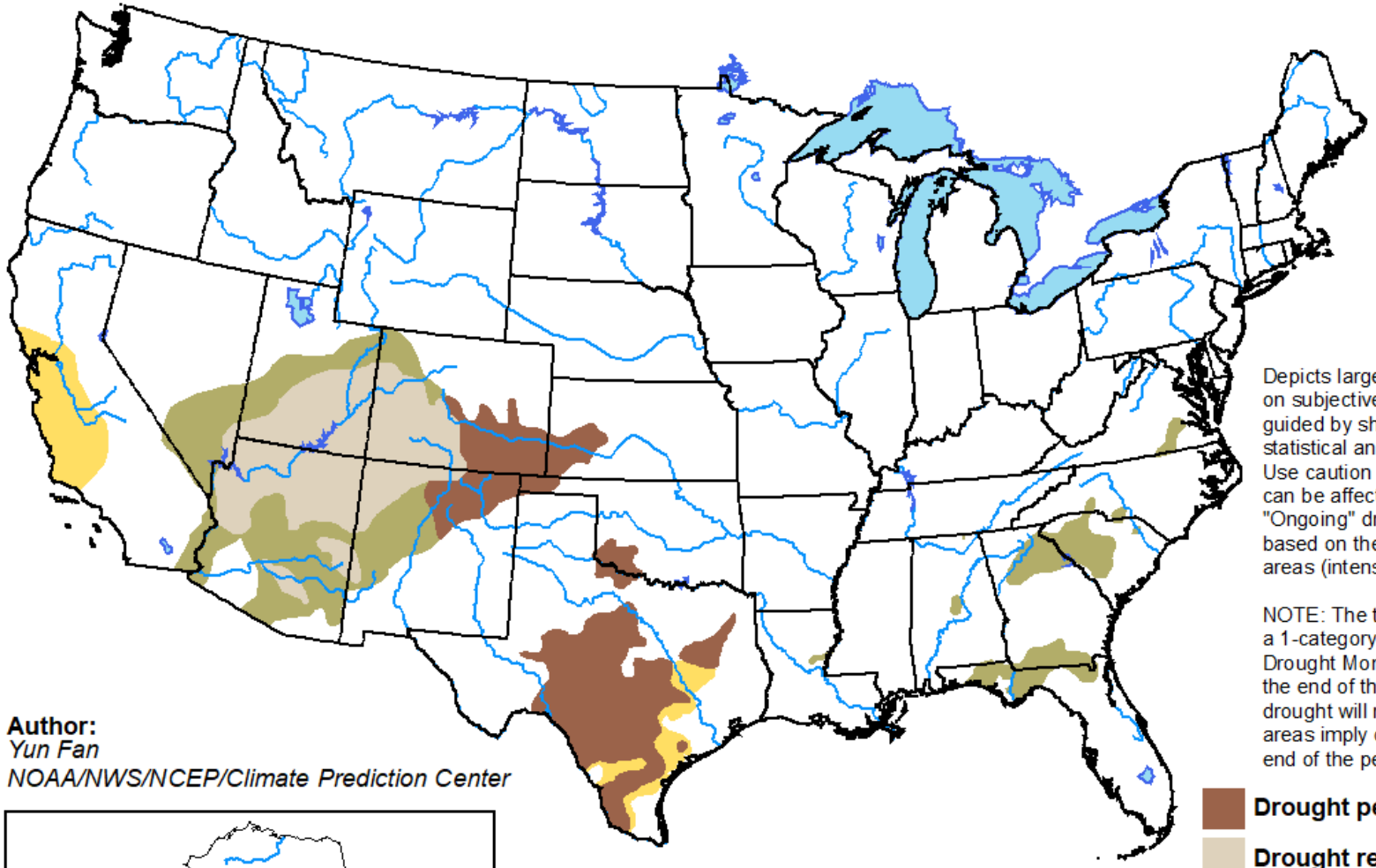


U.S. Seasonal Drought Outlook

Valid for November 21, 2019 - February 29, 2020

Drought Tendency During the Valid Period

Released November 21, 2019



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).

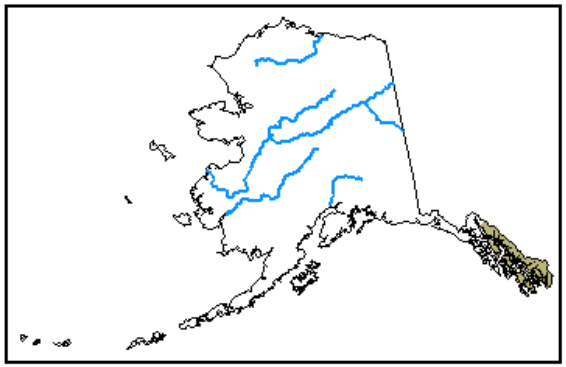
Drought persists

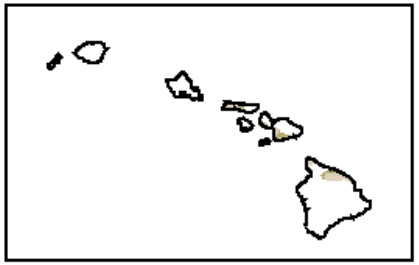
Drought remains but improves

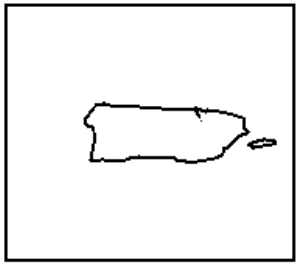
Drought removal likely

Drought development likely

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







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