Drought Indicators Report

Georgia Environmental Protection Division

August 2016

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 may include, but not be limited, to the following:

- U.S. Drought Monitor;
- Precipitation;
- Soil moisture;
- Streamflow;
- Groundwater;
- Reservoir levels;
- Short term climate predictions; 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, Clark 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 August 18, 2016.

Drought Indicator Analysis Summary (slide 1 of 2)

- **Drought Monitor** - Severe drought continues across most of Georgia north of the fall line. Extreme drought covers some or all of 37 counties in the Atlanta metro area, northwest Georgia, and northeast Georgia. This week marks the 12th week of continuous severe drought in northwest Georgia, the 10th week for the Atlanta metro area, the 9th week in Northeast Georgia and the 3nd week in central Georgia.

- **Precipitation** - 3 month records show considerable deficit, particularly in northwest Georgia, southern portions of the Atlanta area, and central Georgia. 6 month precipitation deficit now indicates increasing dryness in multiple areas of the state, with the northern half experiencing the greatest deficit, while 12 month records show near normal rainfall. Some long-term dryness still exists in a few counties in extreme south central Georgia.

- **Soil Moisture** – Much of the state shows deficits, with the greatest severity seen in south-central, central, and northwestern Georgia. Areas south of Atlanta and in west central Georgia continue to show increasing soil moisture deficits.

- **Streamflow** - Low flows that developed in mid-spring continue. Starting in early May, flows at selected gauges in the areas of extreme and severe drought on the U.S. Drought Monitor began decreasing toward flows seen in 2007 and 2011. Two-thirds of the gages show flows in the 20th percentile or lower. Nine show flows in the 10th percentile or lower; flows at one are lower than the 5th percentile.

- **Groundwater** – Levels vary by location. Four wells are above or near median levels. The remainder are below median levels, with six above the 20th percentile and three below the 10th percentile of the historical record.

Drought Indicator Analysis Summary (slide 2 of 2)

- **Reservoir Levels – –** A majority of the state's major reservoirs are experiencing diminishing inflows. In the ACT, reservoir levels have been relatively stable. The ACF reservoirs are in zone 2, and the forecasted elevations anticipate continued stabilization. In the Savannah Basin, Hartwell is at the bottom of level 1 and Thurmond is in level 2. Reservoir levels and inflows in this basin have reached the first trigger in the drought contingency plan and releases from Thurmond Dam have been decreased.

- **Short-term Climate Prediction** - The Climate Prediction Center outlook for temperature and precipitation for August-October, 2016 calls for a chance of above normal temperatures and below normal precipitation for most of the north state.

- **Water Supplies –** Water systems with surface water storage are not reporting issues, while some systems that rely on direct withdrawals from surface water or small wells are expressing concern about dropping water levels. An increasing number of systems are implementing voluntary public awareness campaigns and/or utilizing secondary water sources. A number of systems report seeing the increased demand often associated with dry conditions.

US Drought Monitor

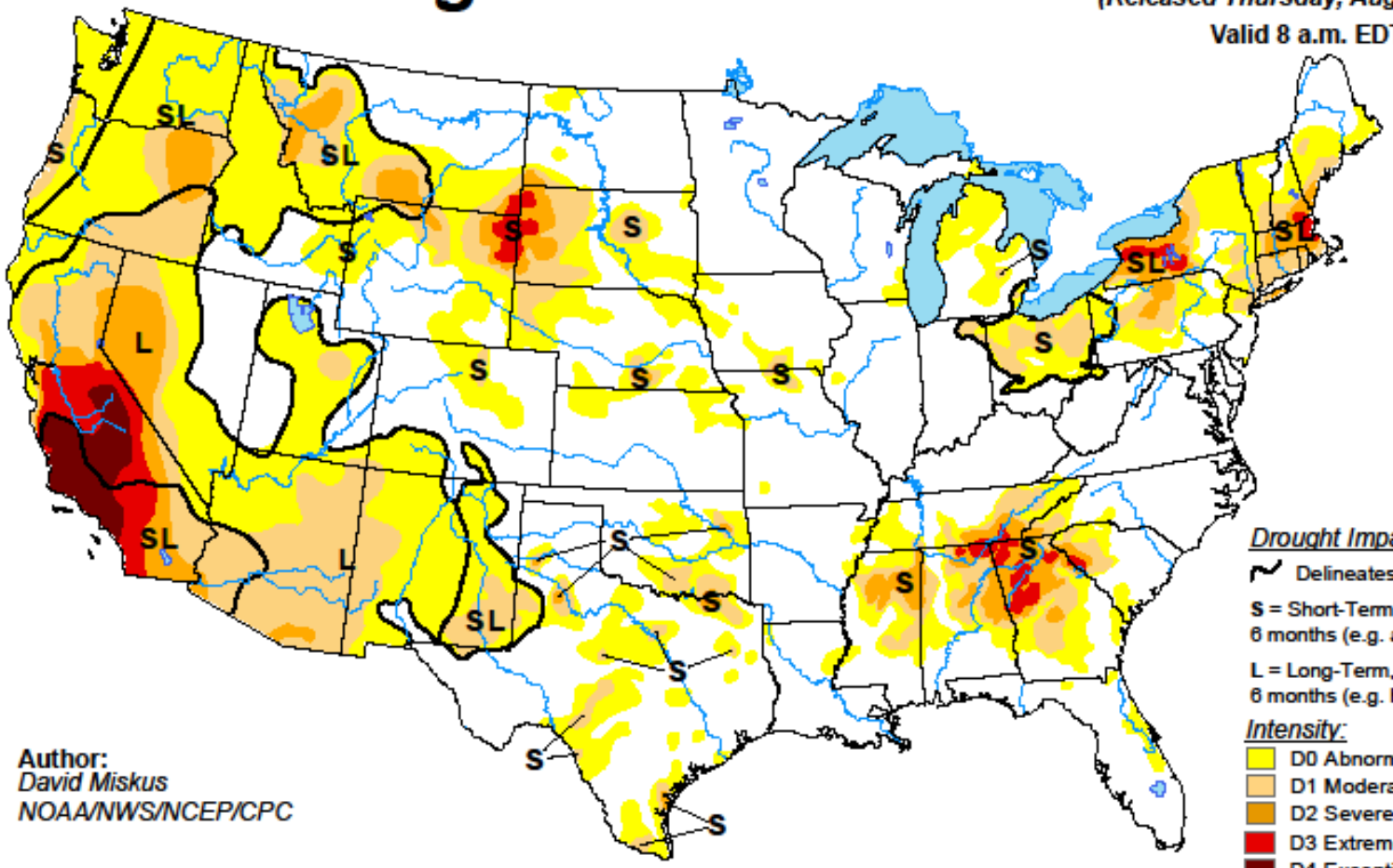
Data Source:
http://droughtmonitor.unl.edu/

U.S. Drought Monitor

August 16, 2016

(Released Thursday, Aug. 18, 2016)

Valid 8 a.m. EDT



Author:
David Miskus
NOAA/NWS/NCEP/CPC

Drought Impact Types:

Delineates dominant impacts

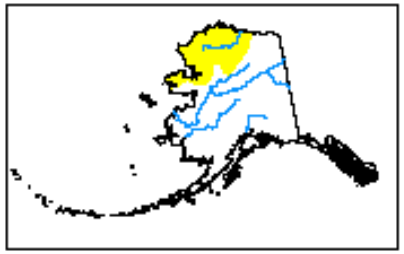
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

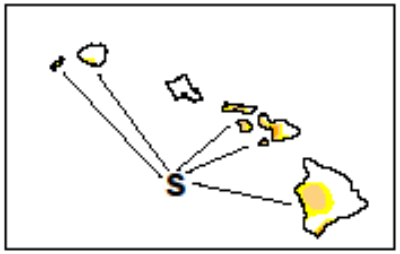
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- 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. See accompanying text summary for forecast statements.





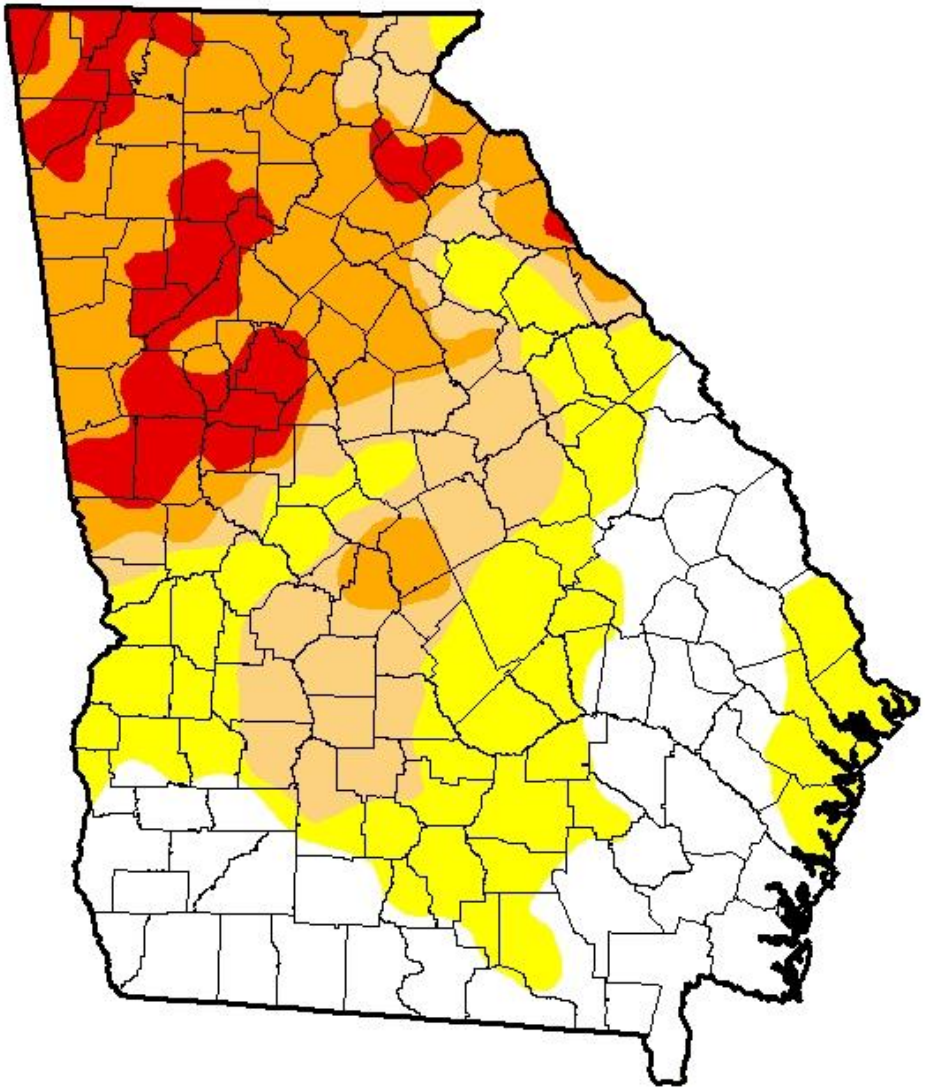
USDA

National Drought Mitigation Center

NOAA

http://droughtmonitor.unl.edu/

U.S. Drought Monitor
Georgia



August 16, 2016

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Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	29.24	70.76	45.09	29.79	9.34	0.00
Last Week 8/9/2016	31.85	68.15	44.75	30.41	8.83	0.00
3 Months Ago 5/17/2016	52.92	47.08	27.04	0.00	0.00	0.00
Start of Calendar Year 12/29/2015	87.36	12.64	0.00	0.00	0.00	0.00
Start of Water Year 9/29/2015	63.46	36.54	17.71	1.20	0.00	0.00
One Year Ago 8/18/2015	42.14	57.86	32.55	2.99	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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Author:
David Miskus
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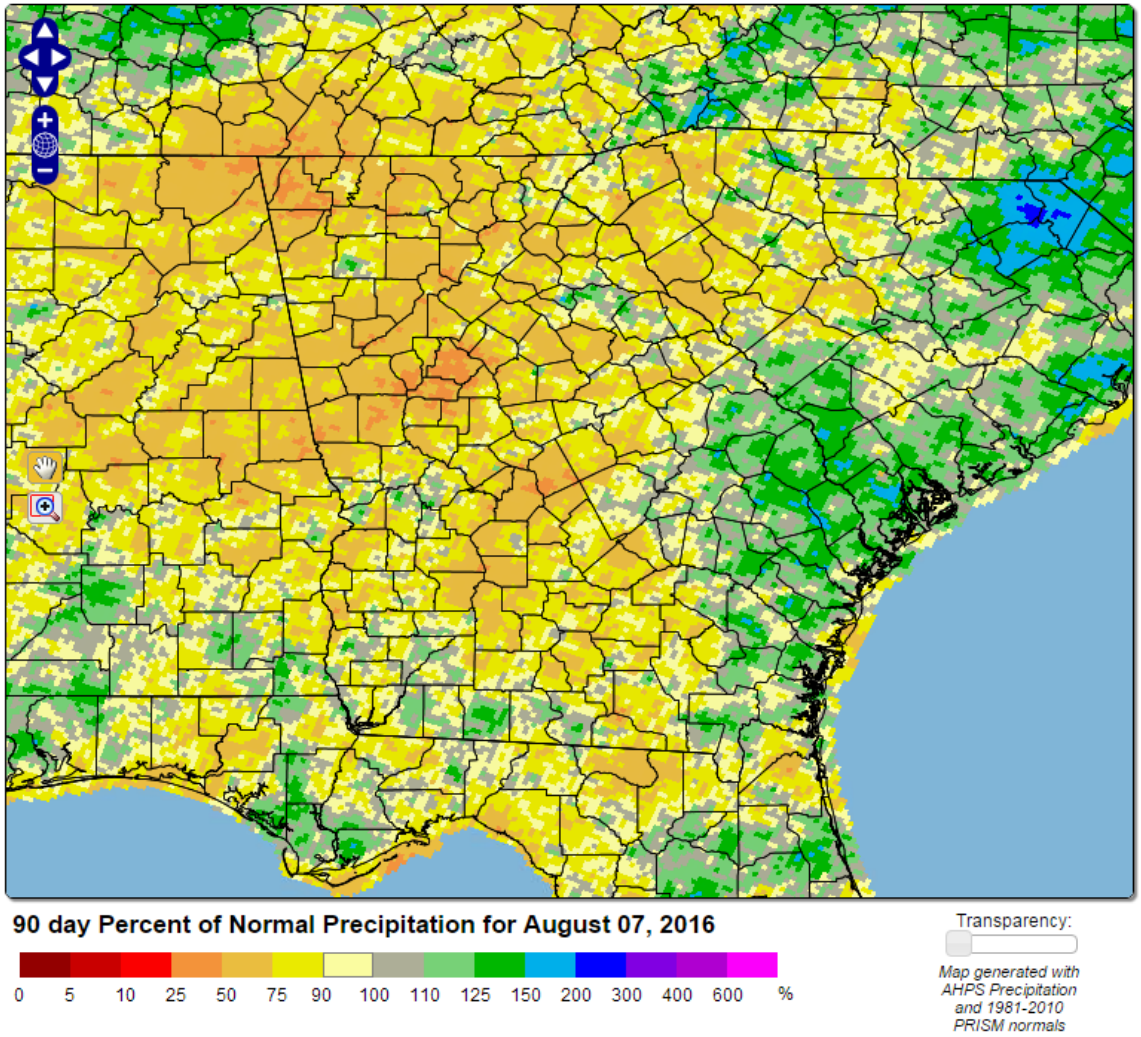
http://droughtmonitor.unl.edu/

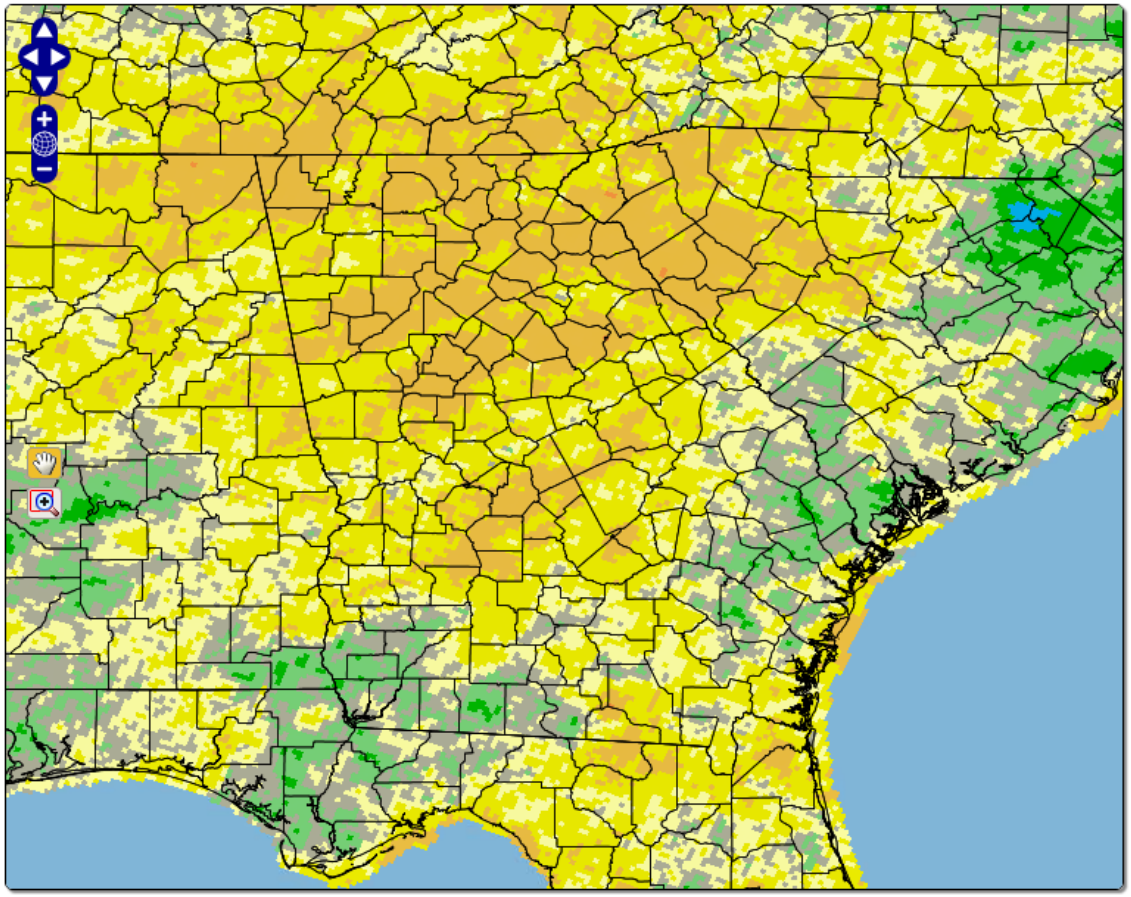
3, 6, and 12 Month Percent of Normal Precipitation

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

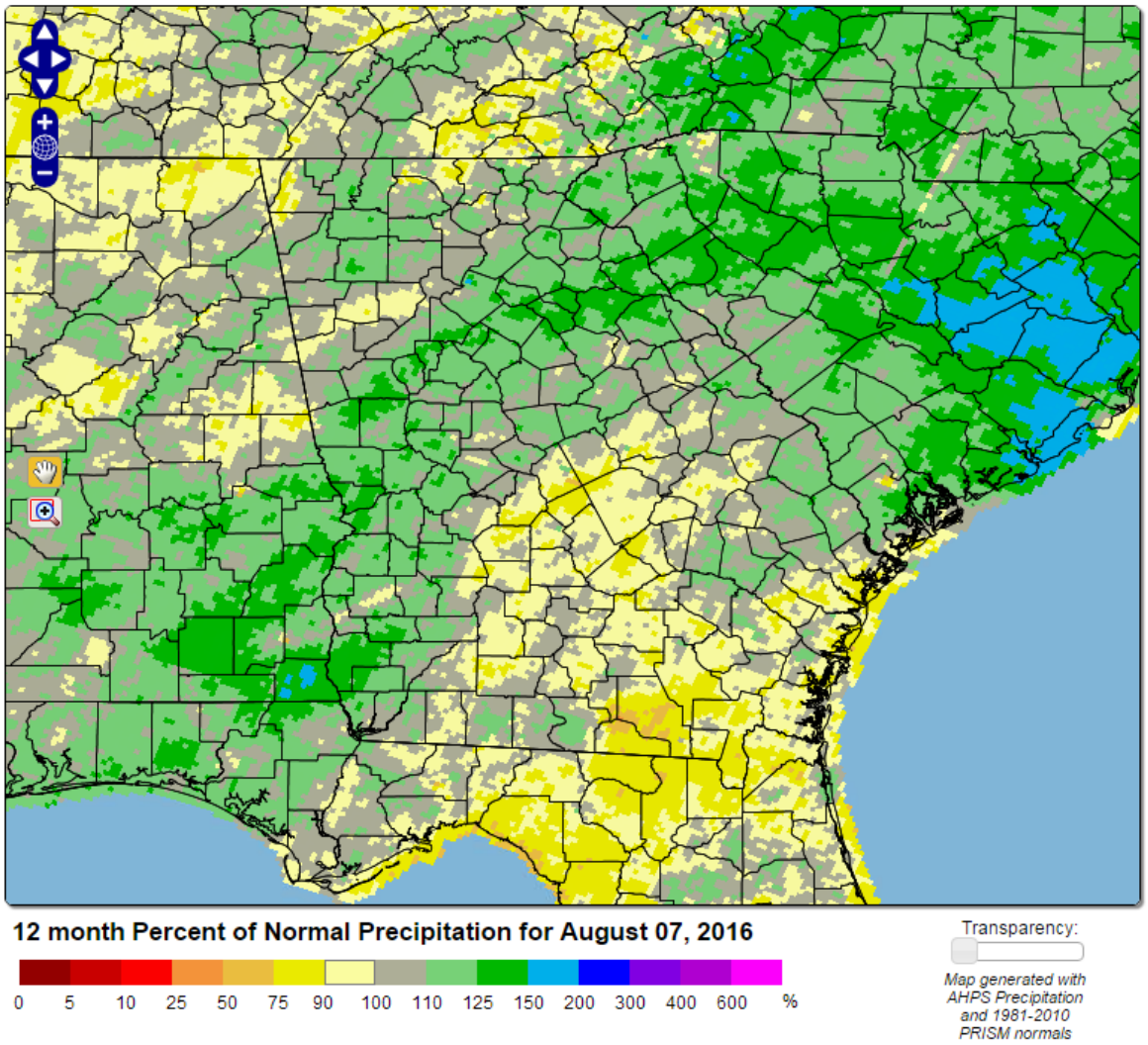
3 Month Percent of Normal Precipitation



6 Month Percent of Normal Precipitation

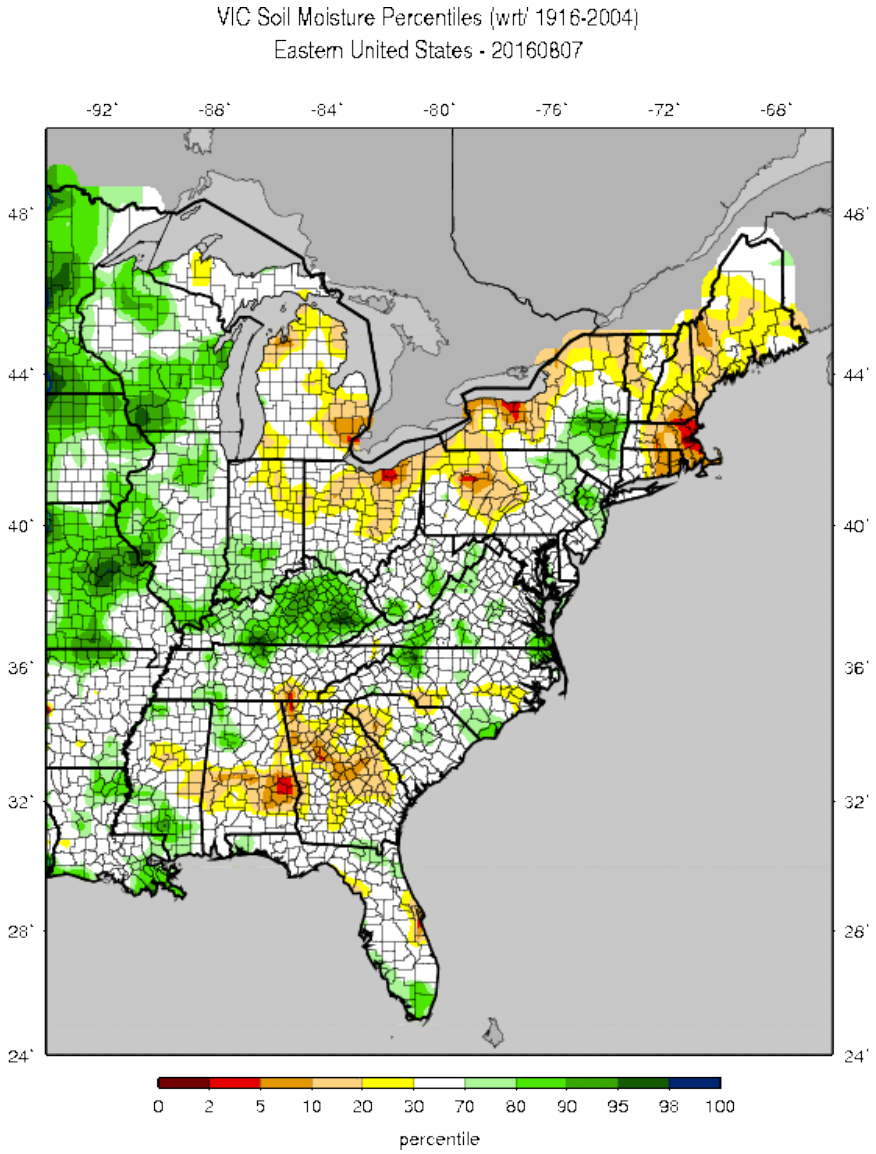


12 Month Percent of Normal Precipitation



Soil Moisture Conditions

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



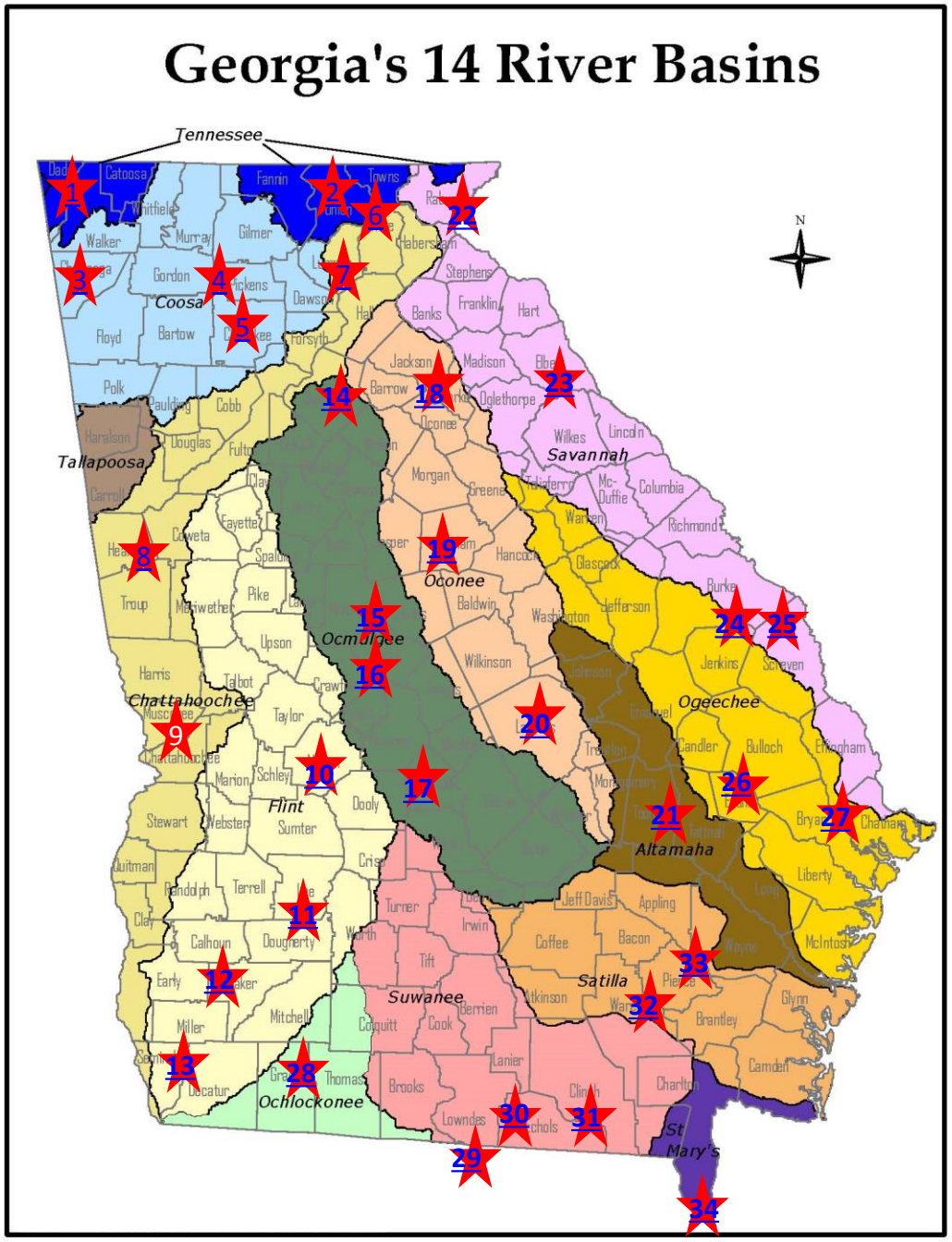
Current (daily updated) percentiles for soil moisture (SWE) with respect to the climatological period (1916-2004).

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 1, 2016 through July 31, 2016;
- 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**

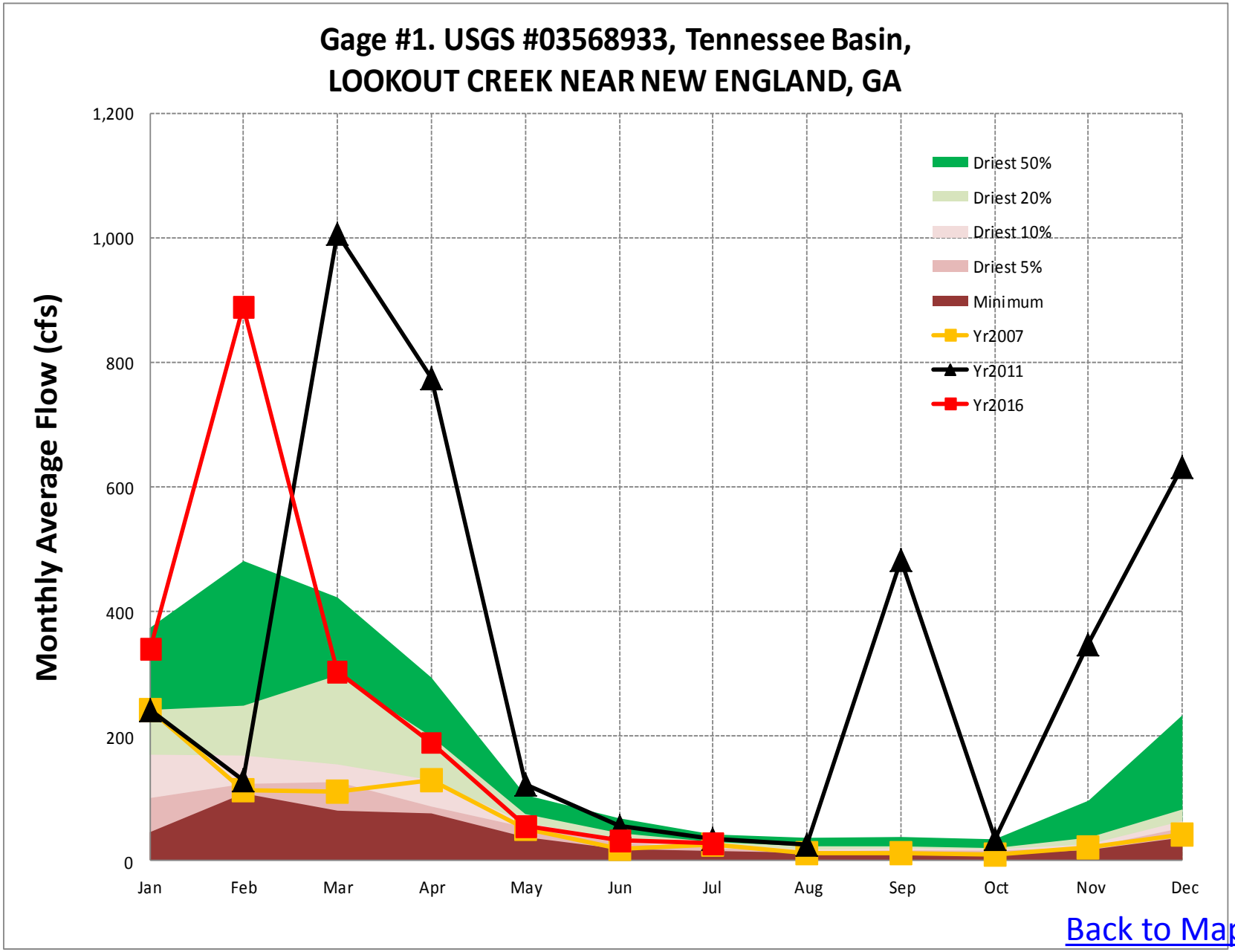
The streamflow graph for Gage #5, USGS Etowah River gage at Canton shows :

- Average stream flow for July 2016 was 372 cfs. The statistical composite of all historical data for this gage shows that average streamflow in July has historically been lower than July 2016 about 20% of the time; about 80% of the time in July it has been higher.
- Average stream flow in July 2011 was 337 cfs. The statistical composite of all historical data for this gage shows that average streamflow for July has historically been lower than July 2011 only 10% of the time; 90% of the time in July it has been higher.
- Average stream flow in July 2007 was 370 cfs. The statistical composite of all historical data for this gage shows that average streamflow for July has historically been lower than July 2007 only 5% of the time; 95% of the time in July it has been higher.
- The lowest recorded average stream flow for July was 210 cfs.

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 July 2016 was 1456 cfs. The statistical composite of all historical data for this gage shows that average streamflow in July has historically been lower than July 2016 about 20% of the time; about 80% of the time in July it has been higher.
- Average stream flow in July 2011 was 1283 cfs. The statistical composite of all historical data for this gage shows that average streamflow for July has historically been lower than July 2011 about 10% of the time; about 90% of the time in July it has been higher.
- Average stream flow in July 2007 was 1325 cfs. The statistical composite of all historical data for this gage shows that average streamflow for July has historically been lower than July 2007 about 10% of the time; about 90% of the time in July it has been higher.


Gage #1. USGS #03568933, Tennessee Basin,
LOOKOUT CREEK NEAR NEW ENGLAND, GA
Monthly Average Flow (cfs)
1,200
1,000
800
600
400
200
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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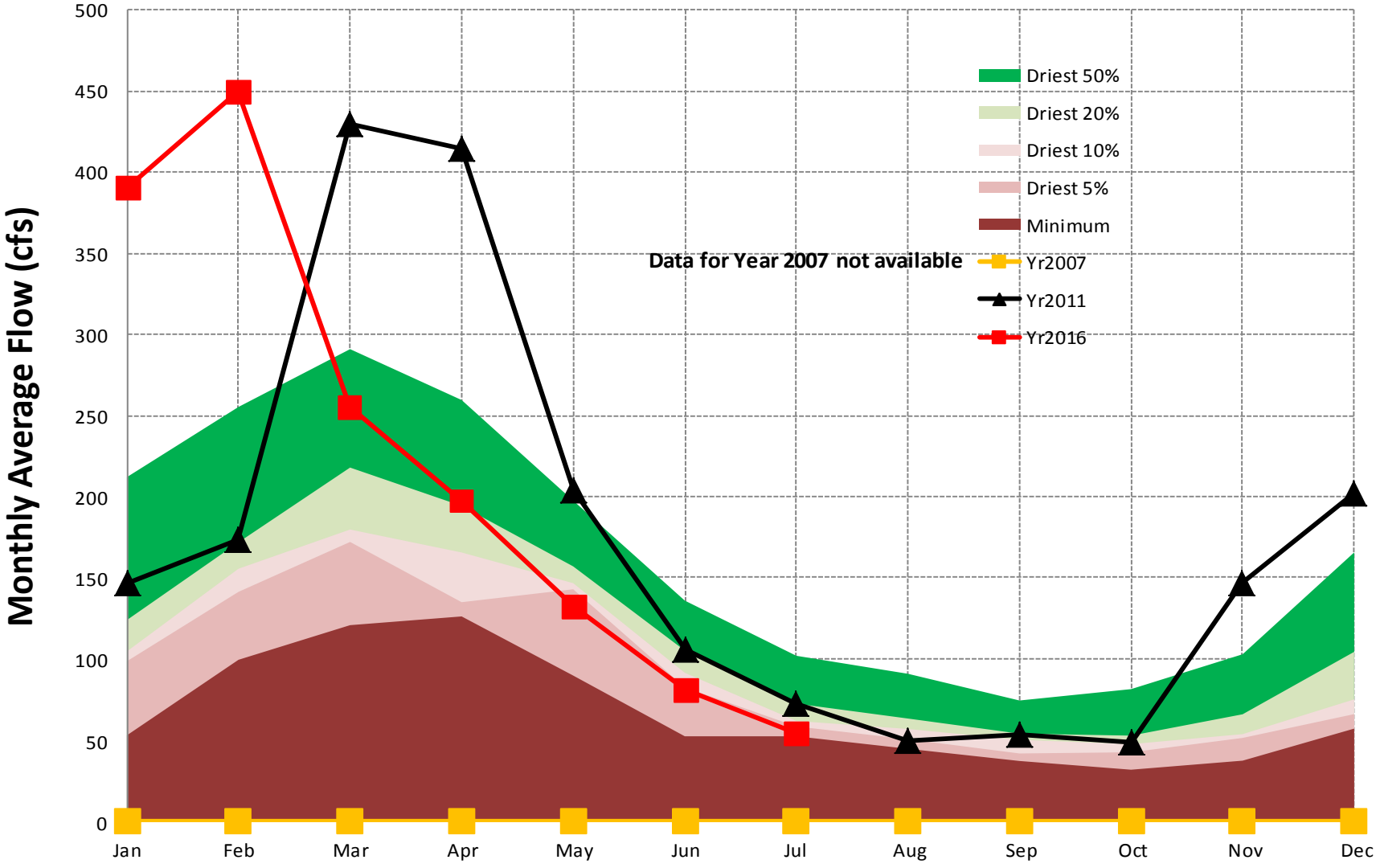
Gage #2, USGS #03550500, Tennessee Basin, NOTTELY RIVER NEAR BLAIRSVILLE, GA



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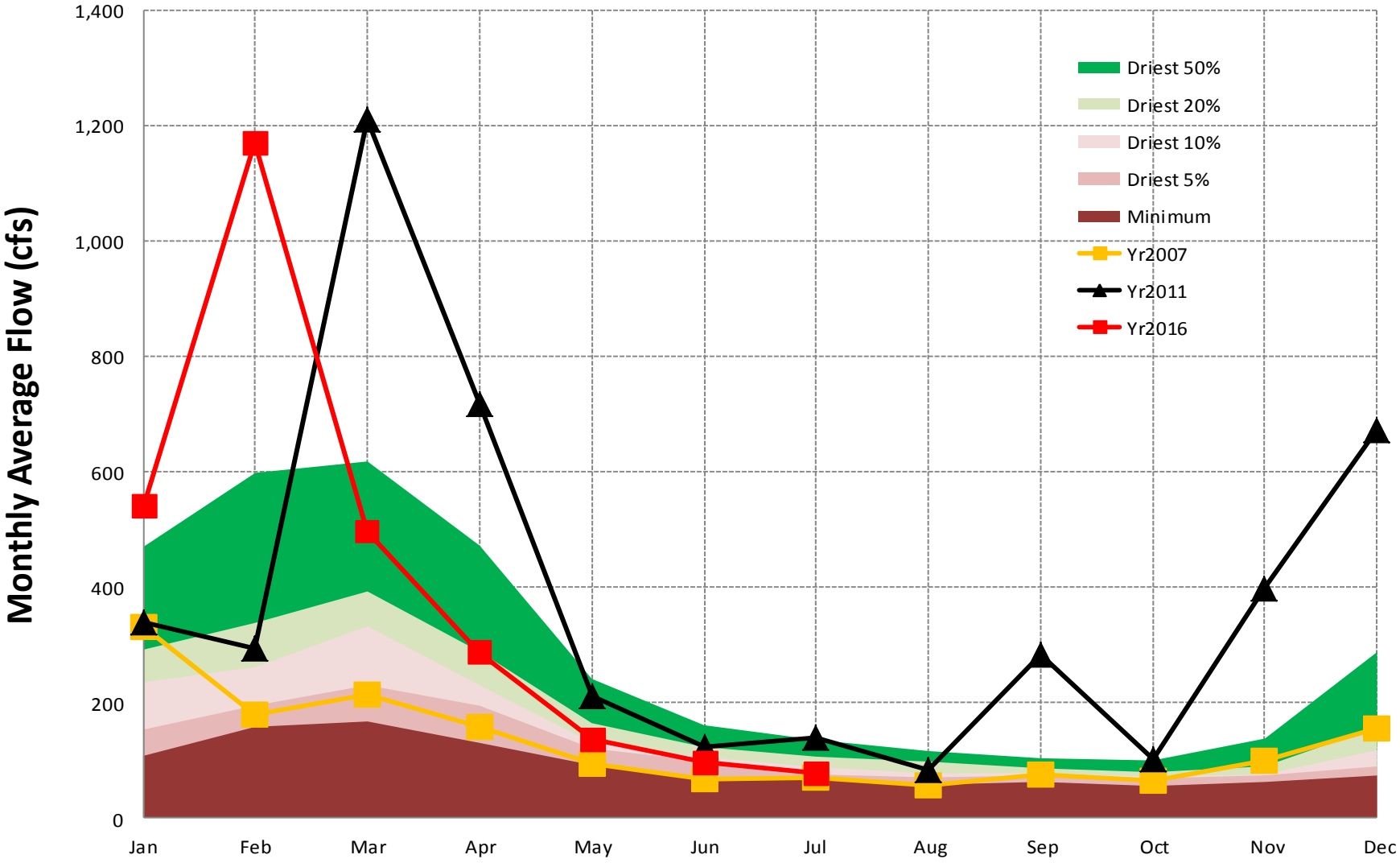
Gage #3. USGS #02398000, Coosa Basin, Chattooga River at Summerville, GA



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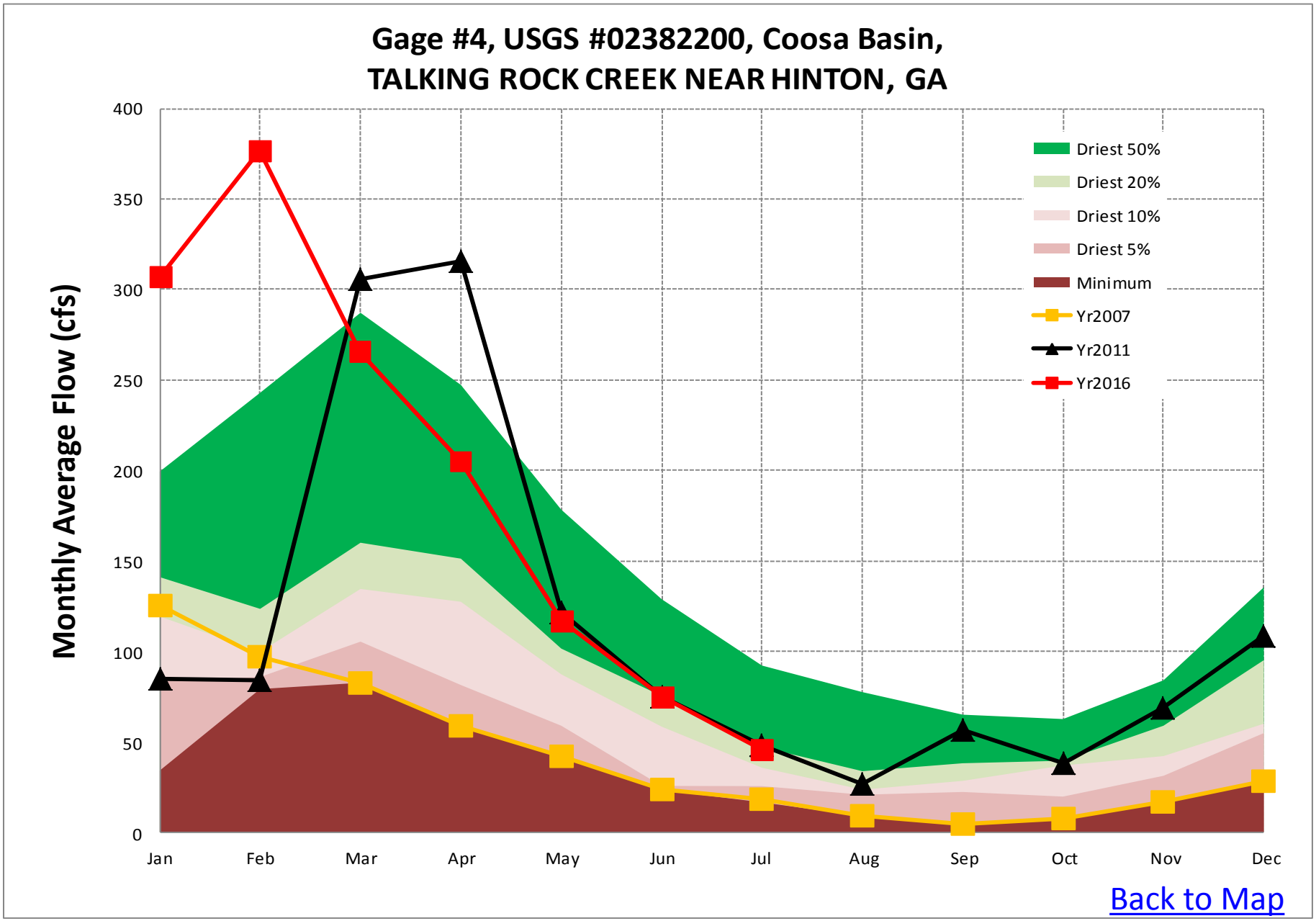
Gage #4, USGS #02382200, Coosa Basin,
TALKING ROCK CREEK NEAR HINTON, GA
Monthly Average Flow (cfs)
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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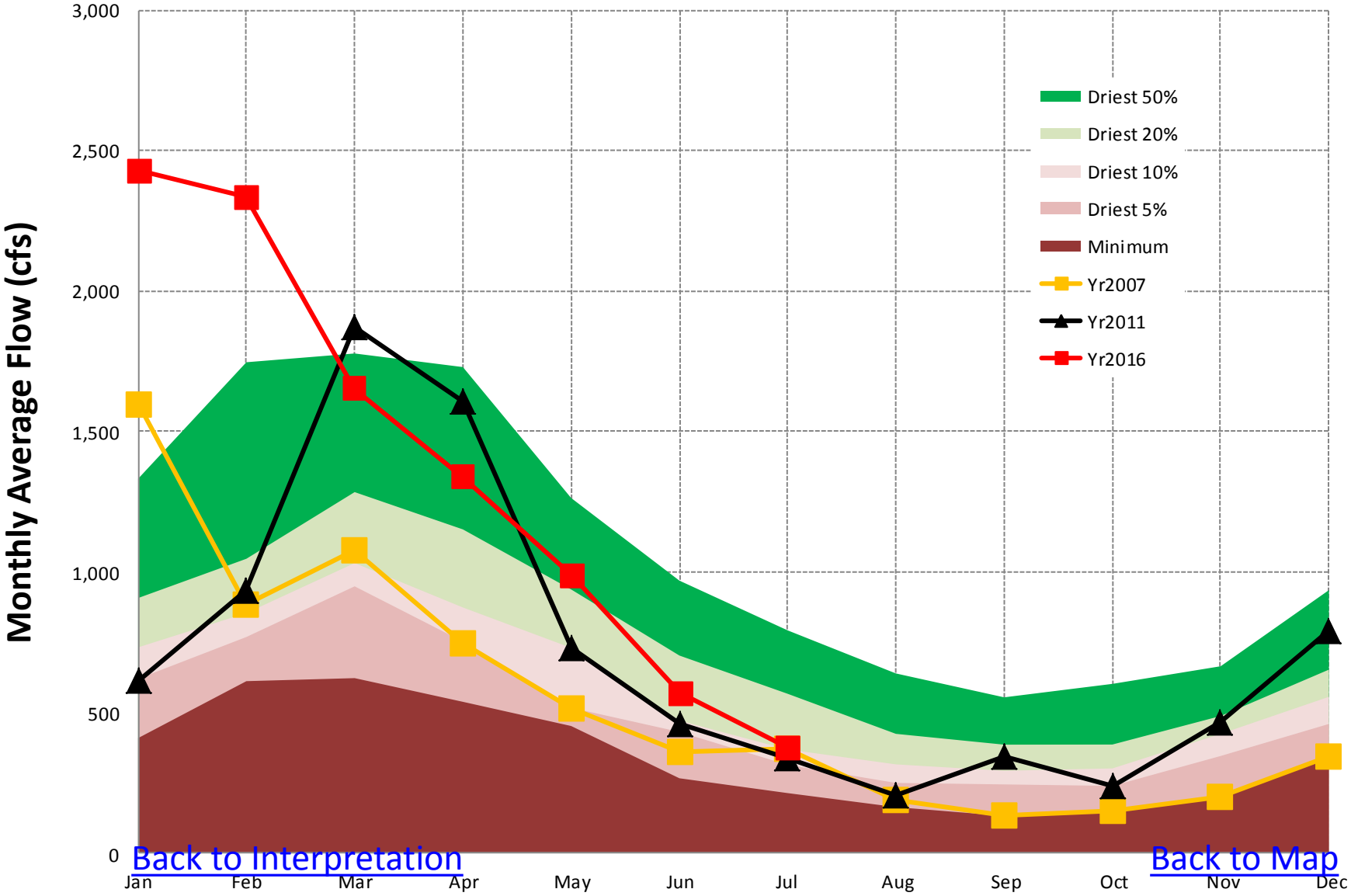
Gage #5, USGS #02392000, Coosa Basin, Etowah River at Canton, GA



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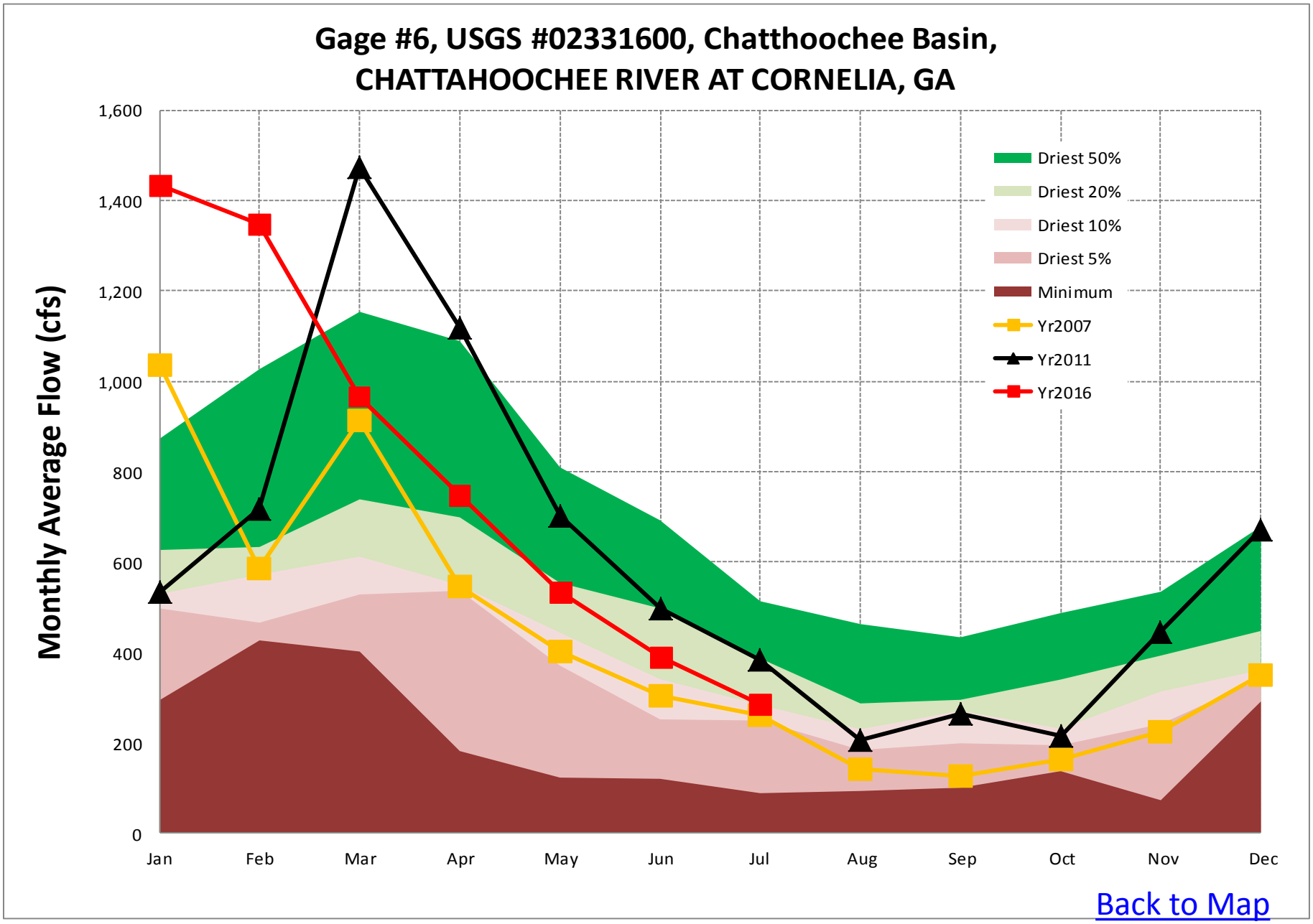
Gage #6, USGS #02331600, Chatthoochee Basin,
CHATTAHOOCHEE RIVER AT CORNELIA, GA
Monthly Average Flow (cfs)
1,600
1,400
1,200
1,000
800
600
400
200
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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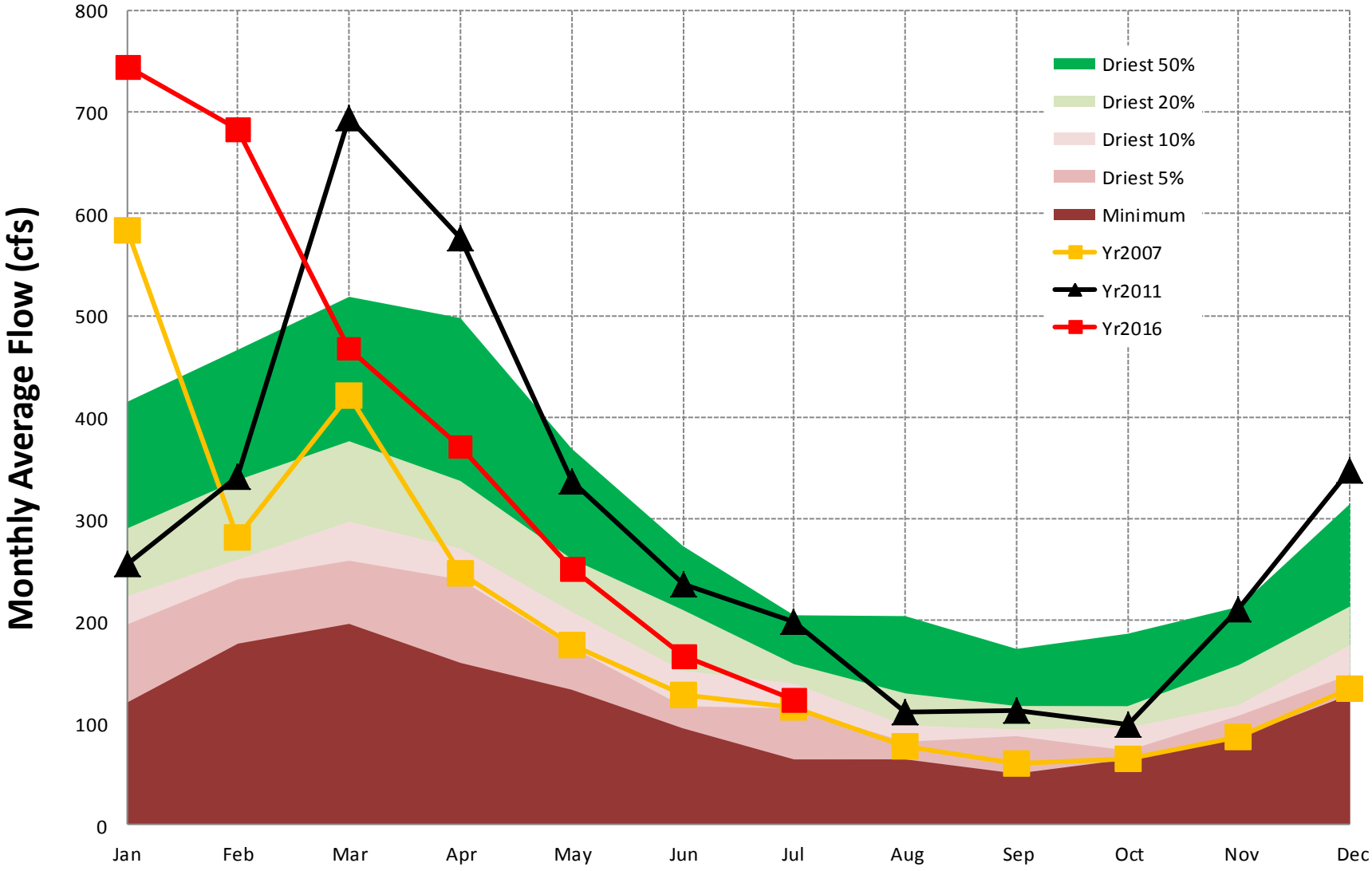
Gage #7, USGS #02333500, Chatahoochee Basin, CHESTATEE RIVER NEAR DAHLONEGA, GA



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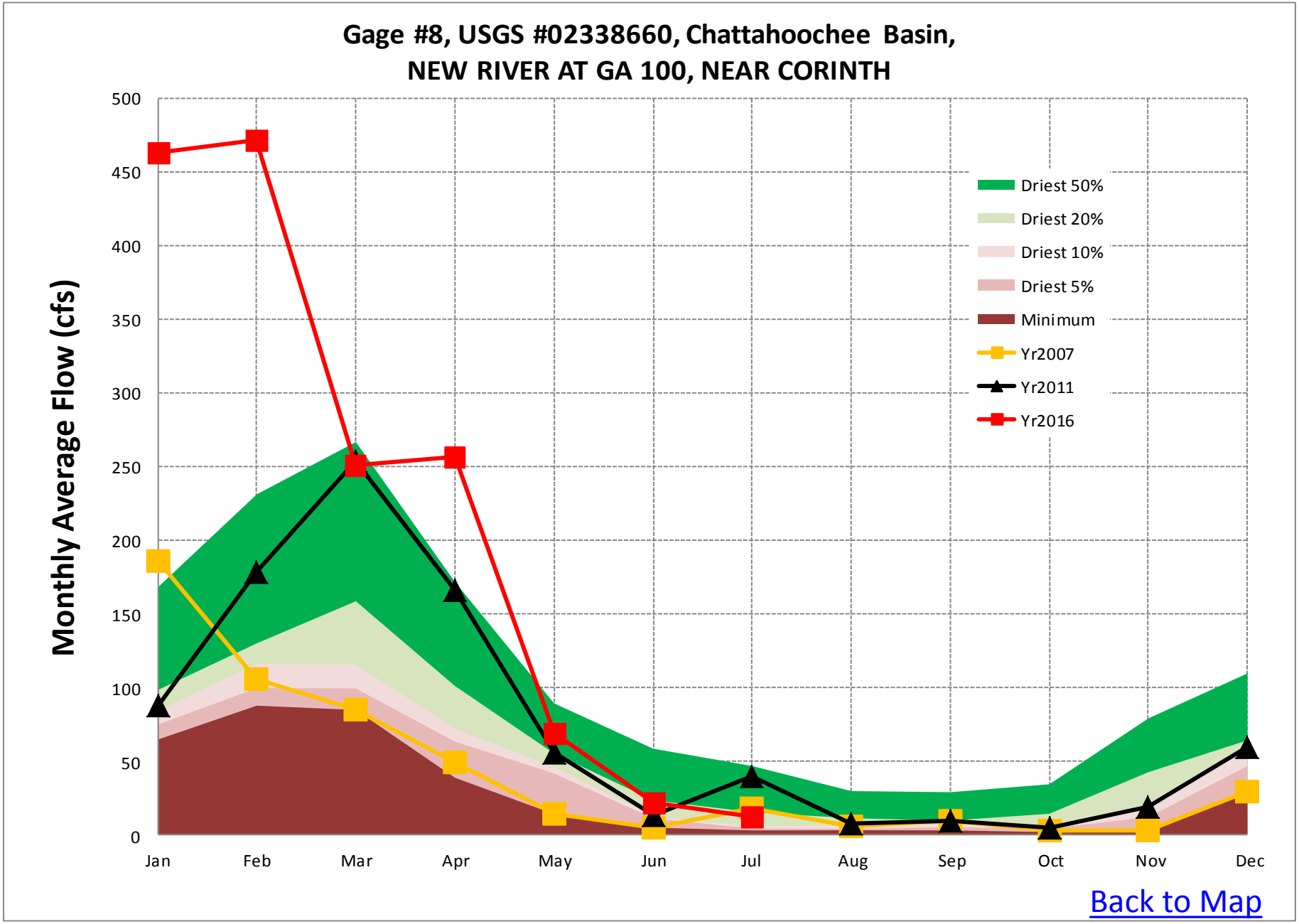
Gage #8, USGS #02338660, Chattahoochee Basin,
NEW RIVER AT GA 100, NEAR CORINTH
Monthly Average Flow (cfs)
500
450
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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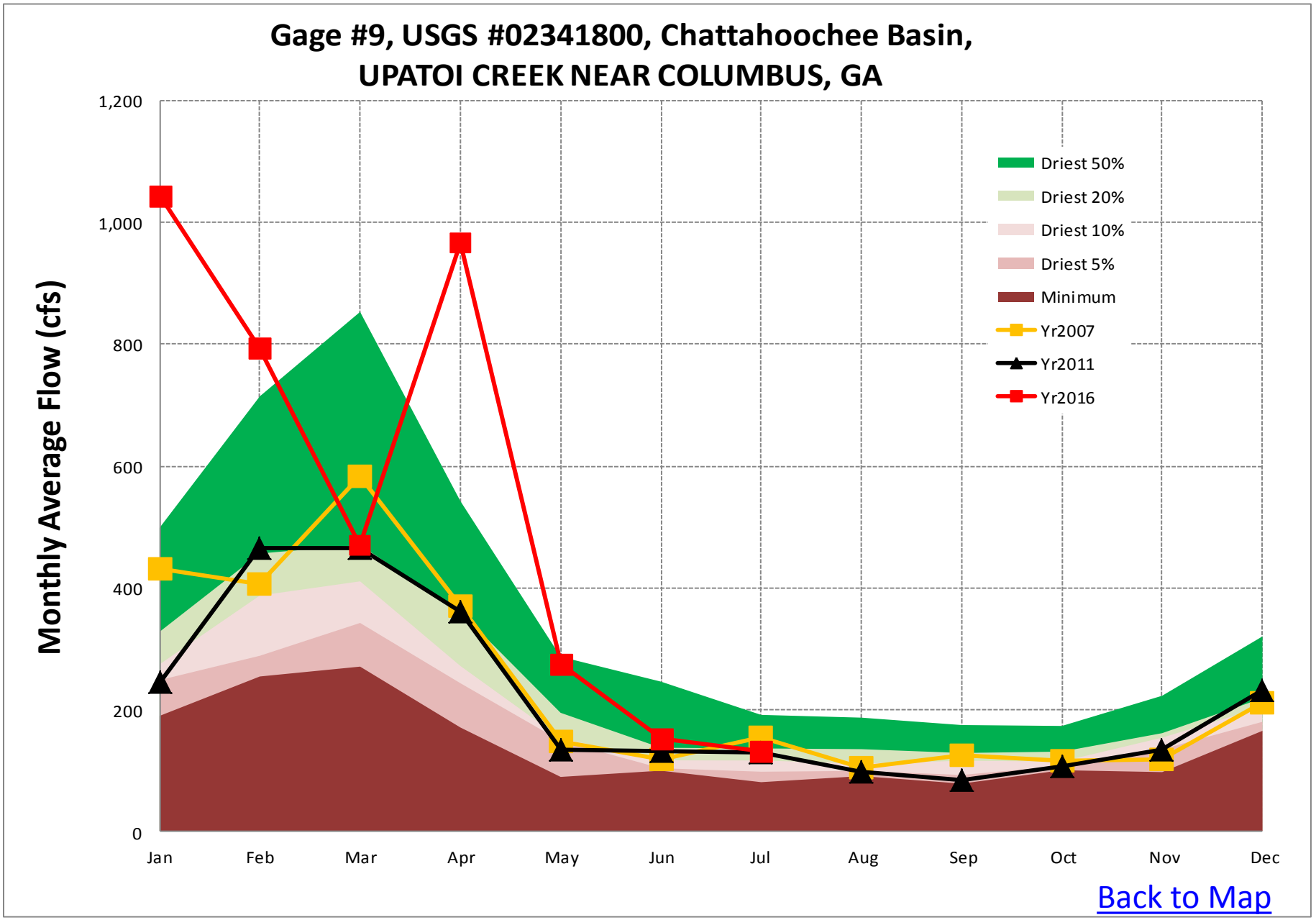
Gage #9, USGS #02341800, Chattahoochee Basin,
UPATOI CREEK NEAR COLUMBUS, GA
Monthly Average Flow (cfs)
1,200
1,000
800
600
400
200
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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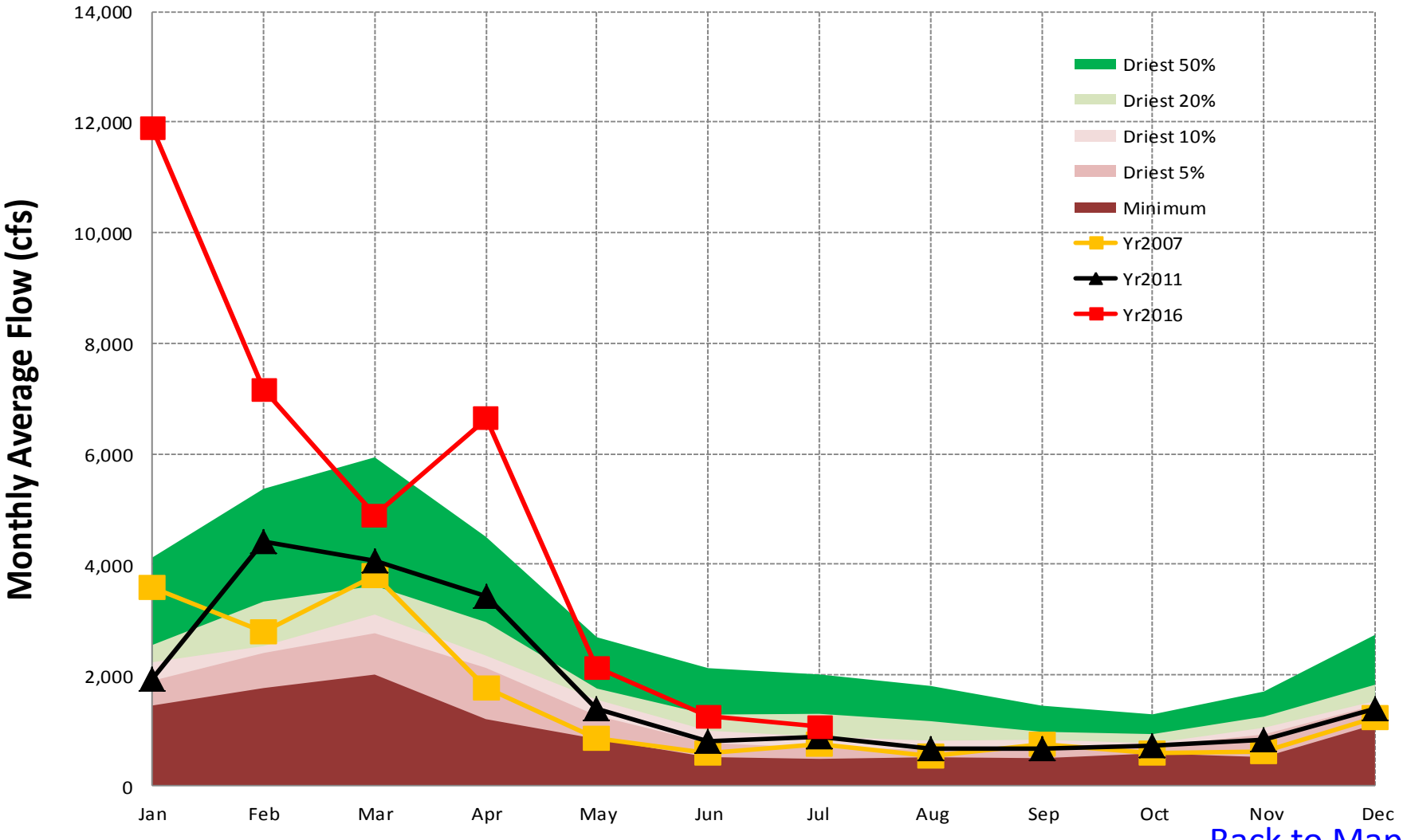
Gage #10. USGS #02349605, Flint Basin, FLINT RIVER AT GA26 NEAR MONTEZUMA, GA



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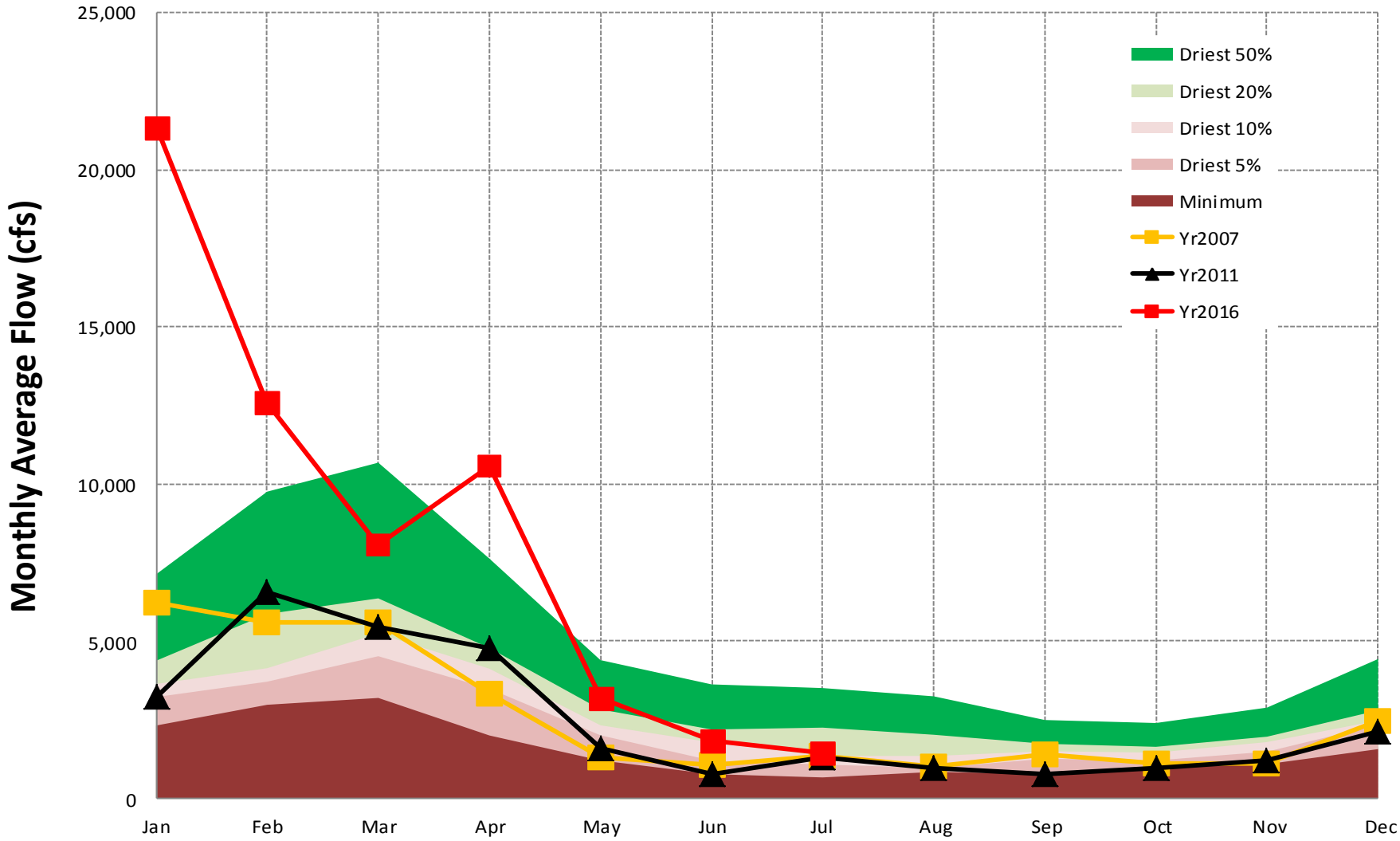
Gage #11, USGS #02352500, Flint Basin, FLINT RIVER AT ALBANY, GA



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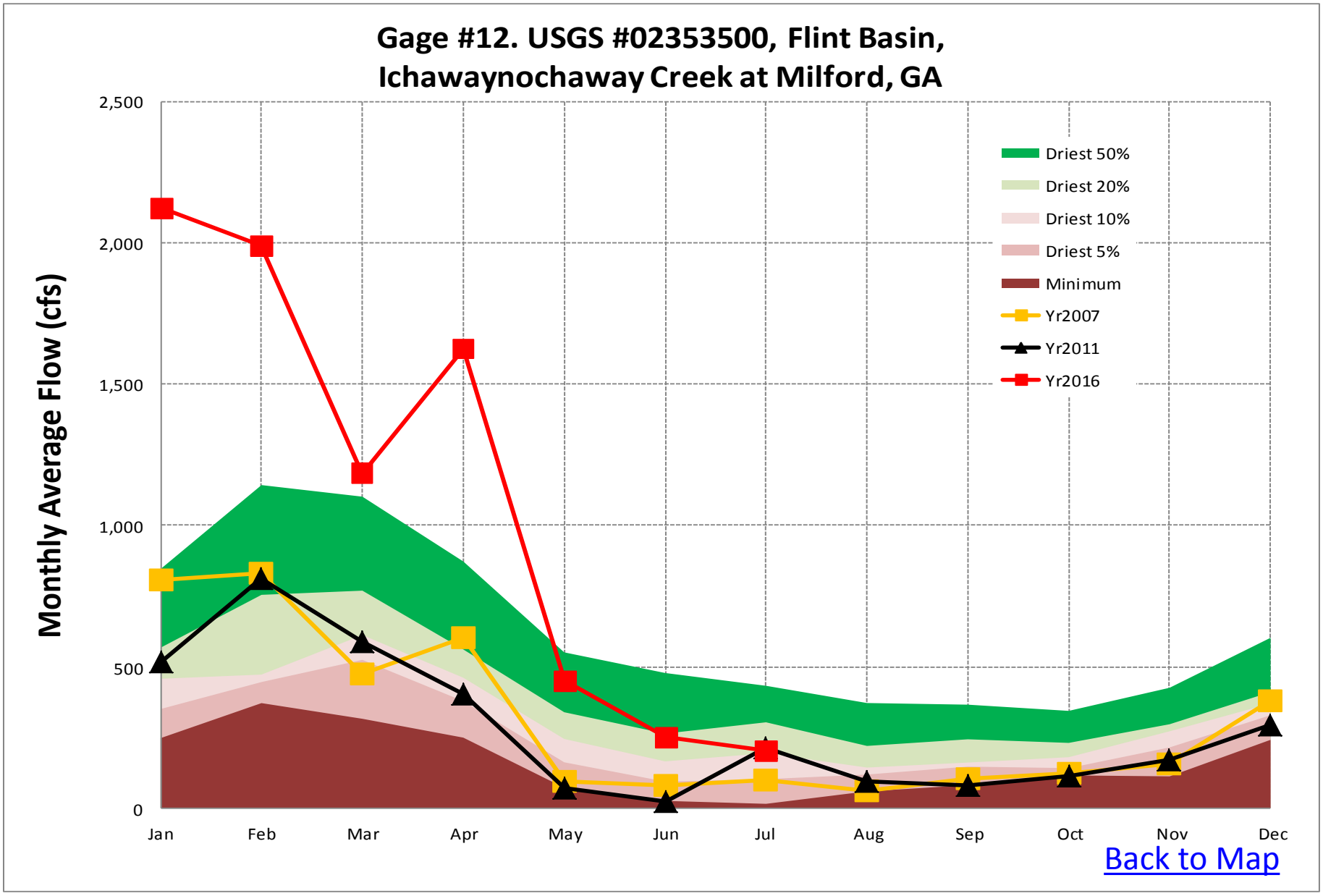
Gage #12. USGS #02353500, Flint Basin,
Ichawaynochaway Creek at Milford, GA
Monthly Average Flow (cfs)
2,500
2,000
1,500
1,000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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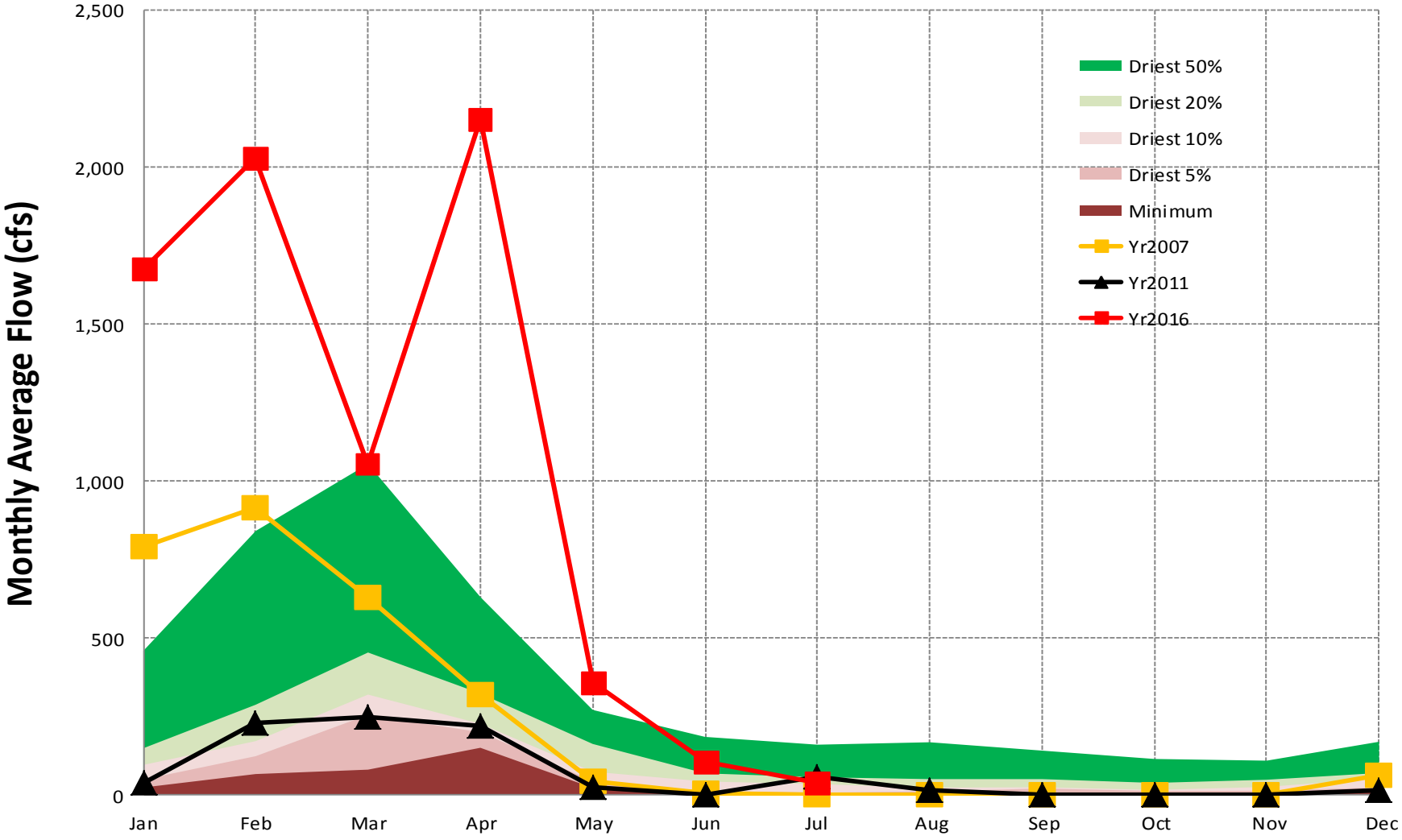
Gage #13. USGS #02357000, Flint River, Spring Creek near Iron City, GA



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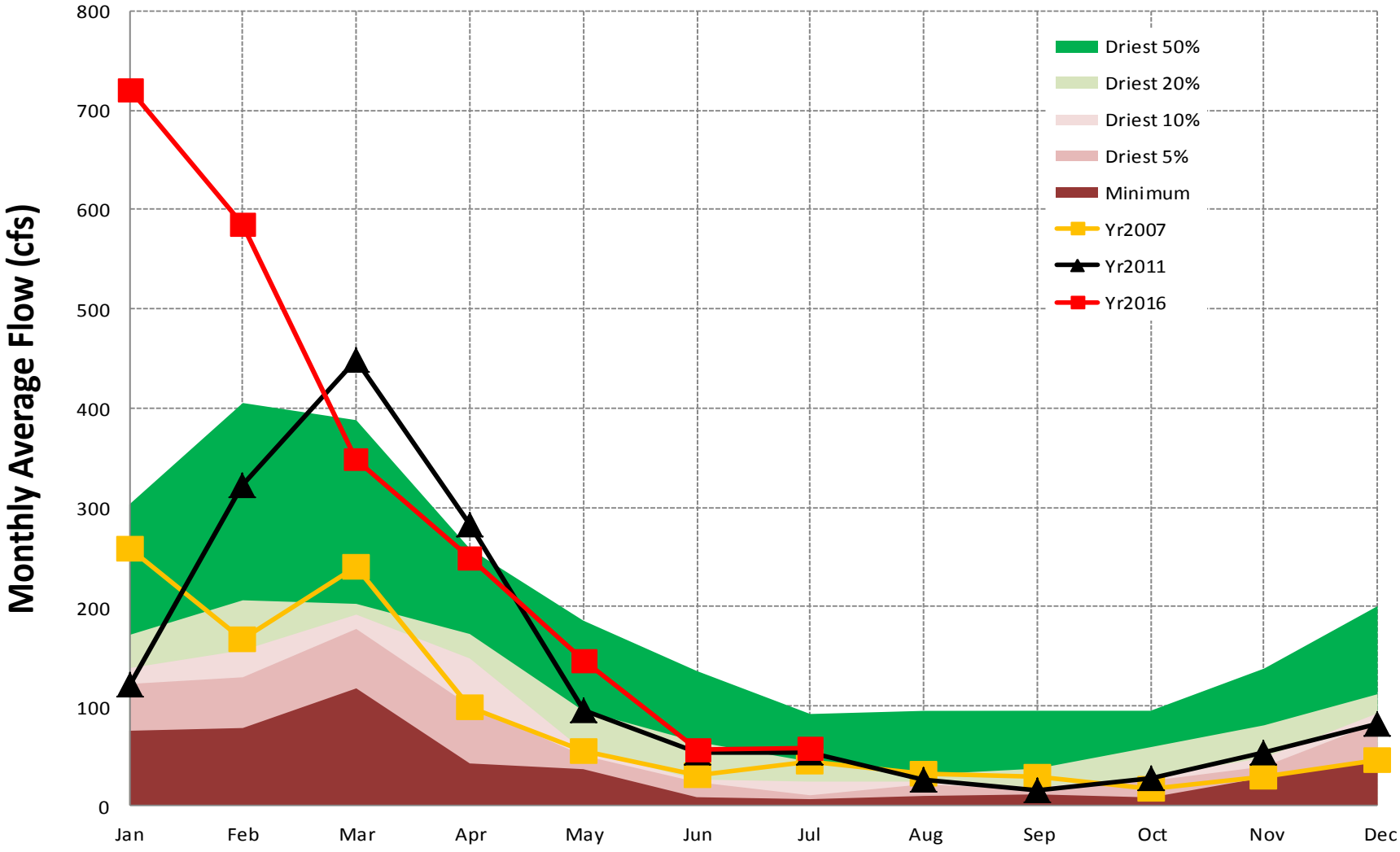
Gage #14. USGS #02208450, Ocumulgee Basin, ALCOVY RIVER above COVINGTON, GA



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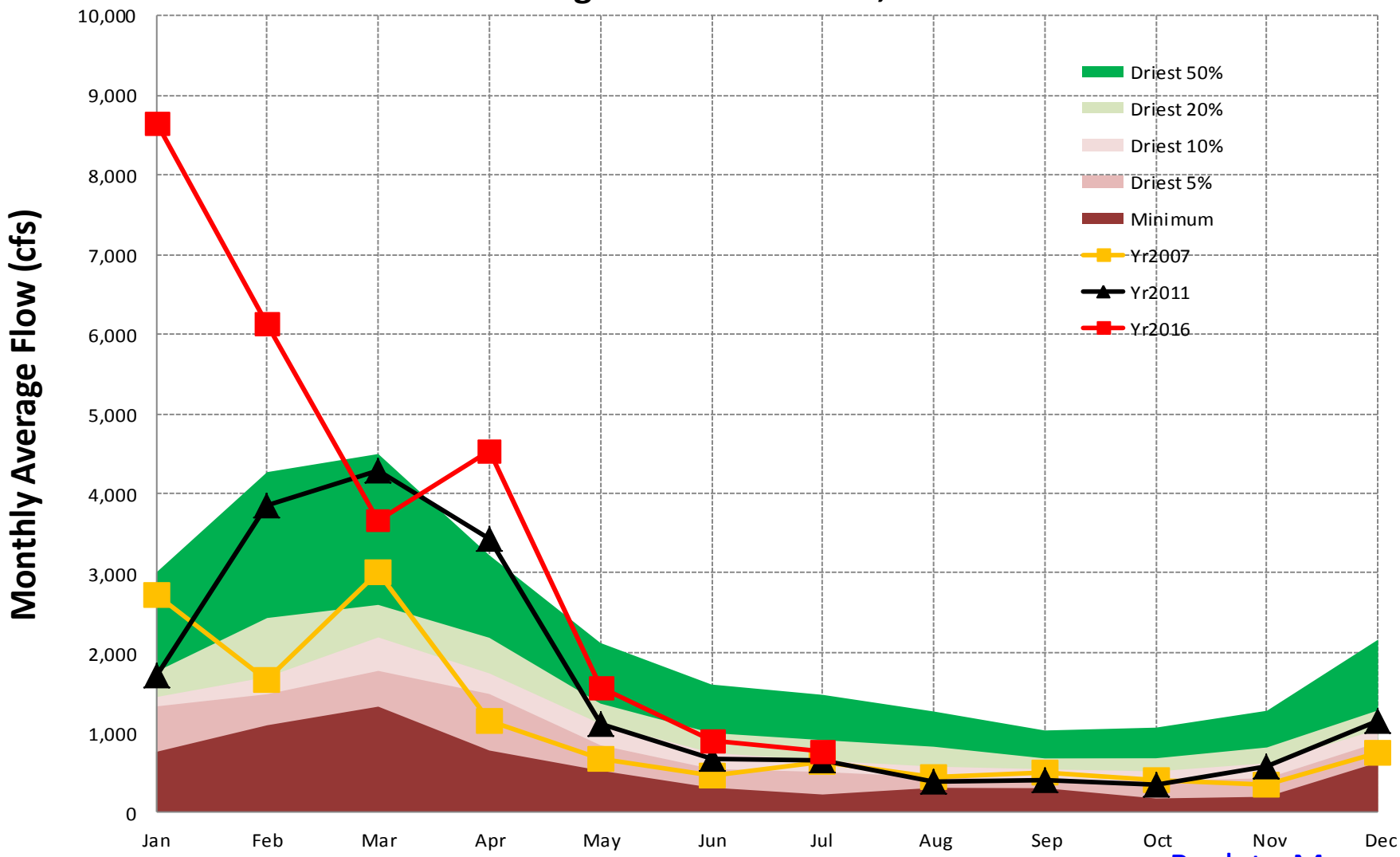
Gage #15. USGS #02213000, Ocmulgee Basin, Ocmulgee River at Macon, GA



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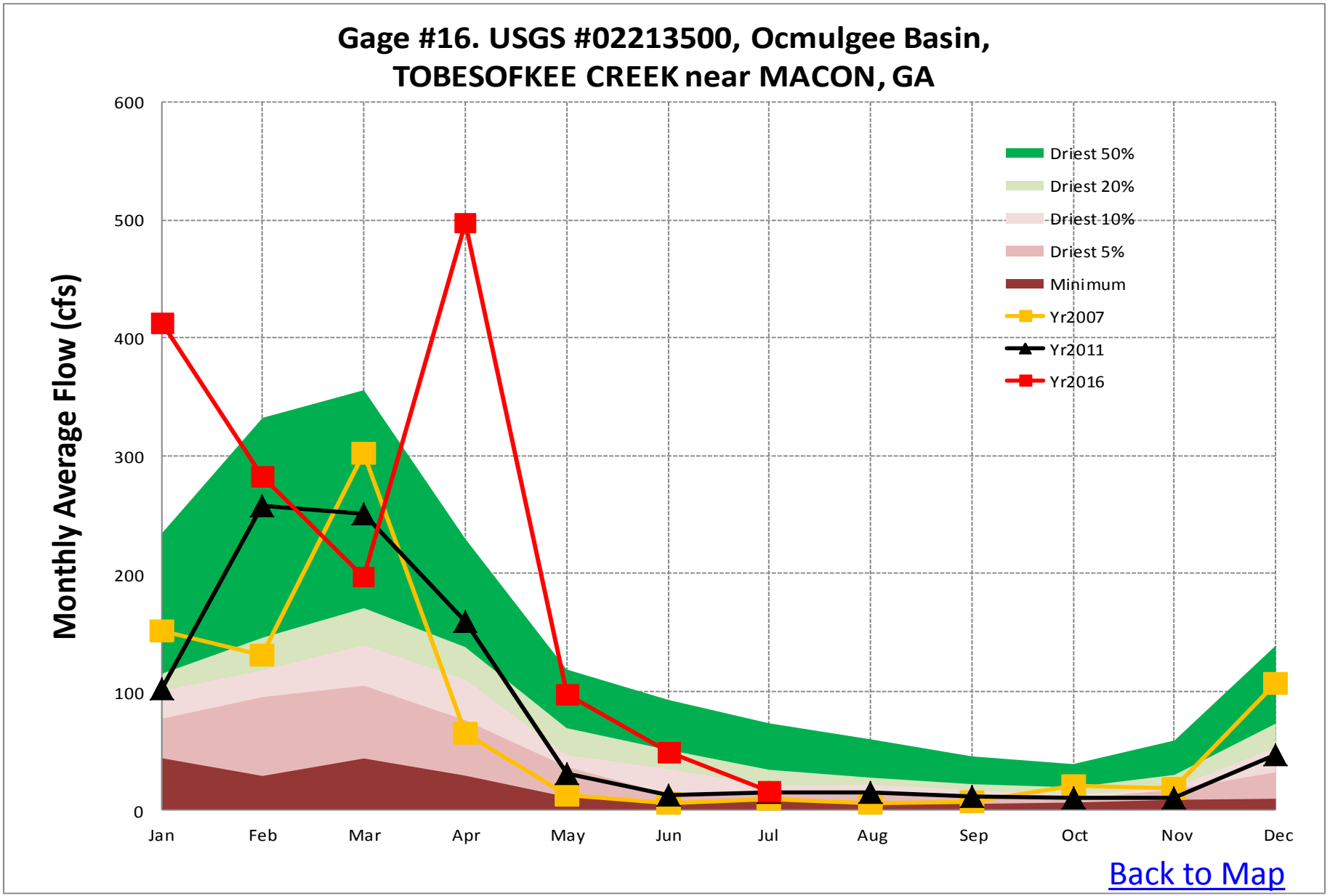
Gage #16. USGS #02213500, Ocmulgee Basin,
TOBESOFKEE CREEK near MACON, GA
Monthly Average Flow (cfs)
600
500
400
300
200
100
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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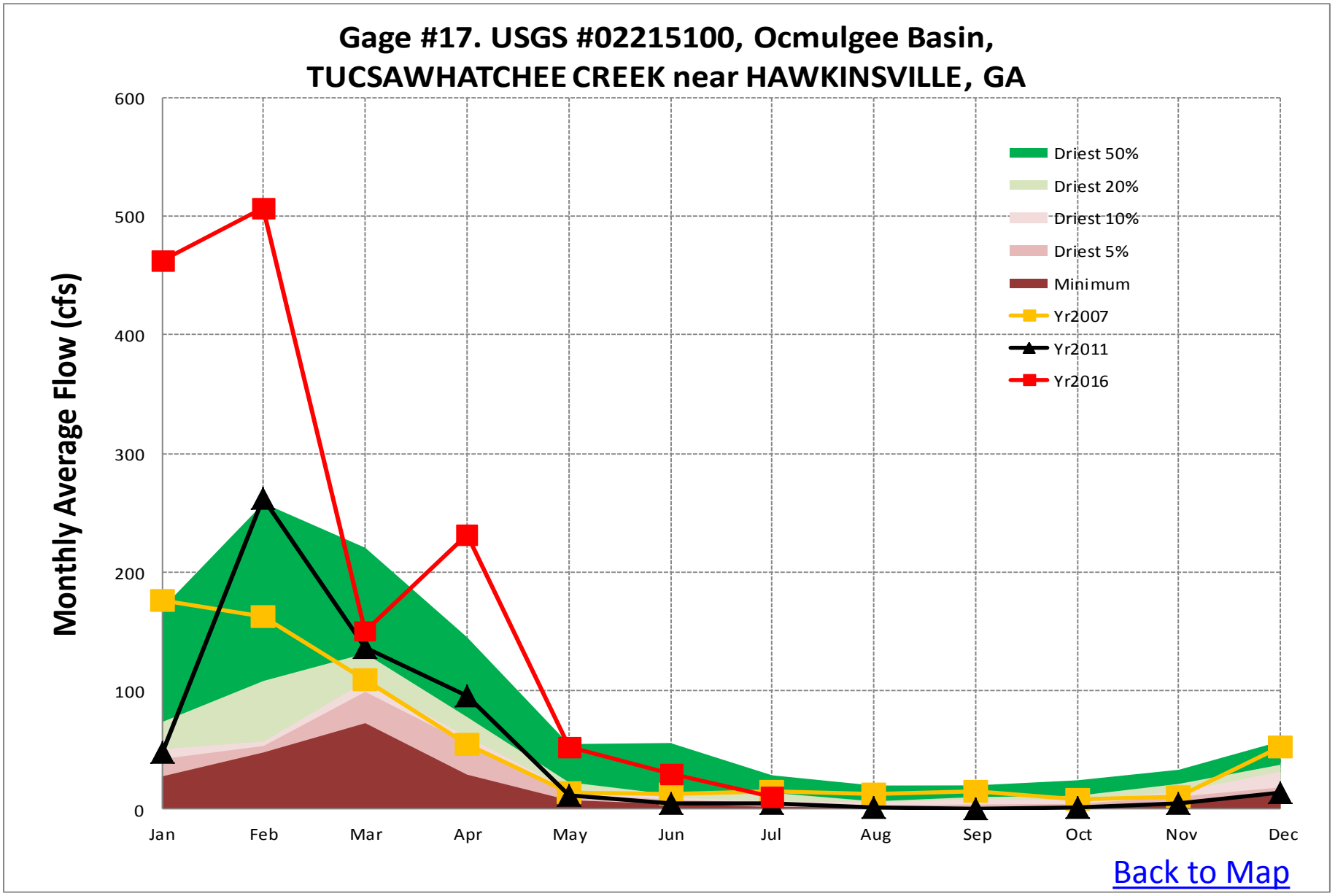
Gage #17. USGS #02215100, Ocmulgee Basin,
TUCSAWHATCHEE CREEK near HAWKINSVILLE, GA
Monthly Average Flow (cfs)
600
500
400
300
200
100
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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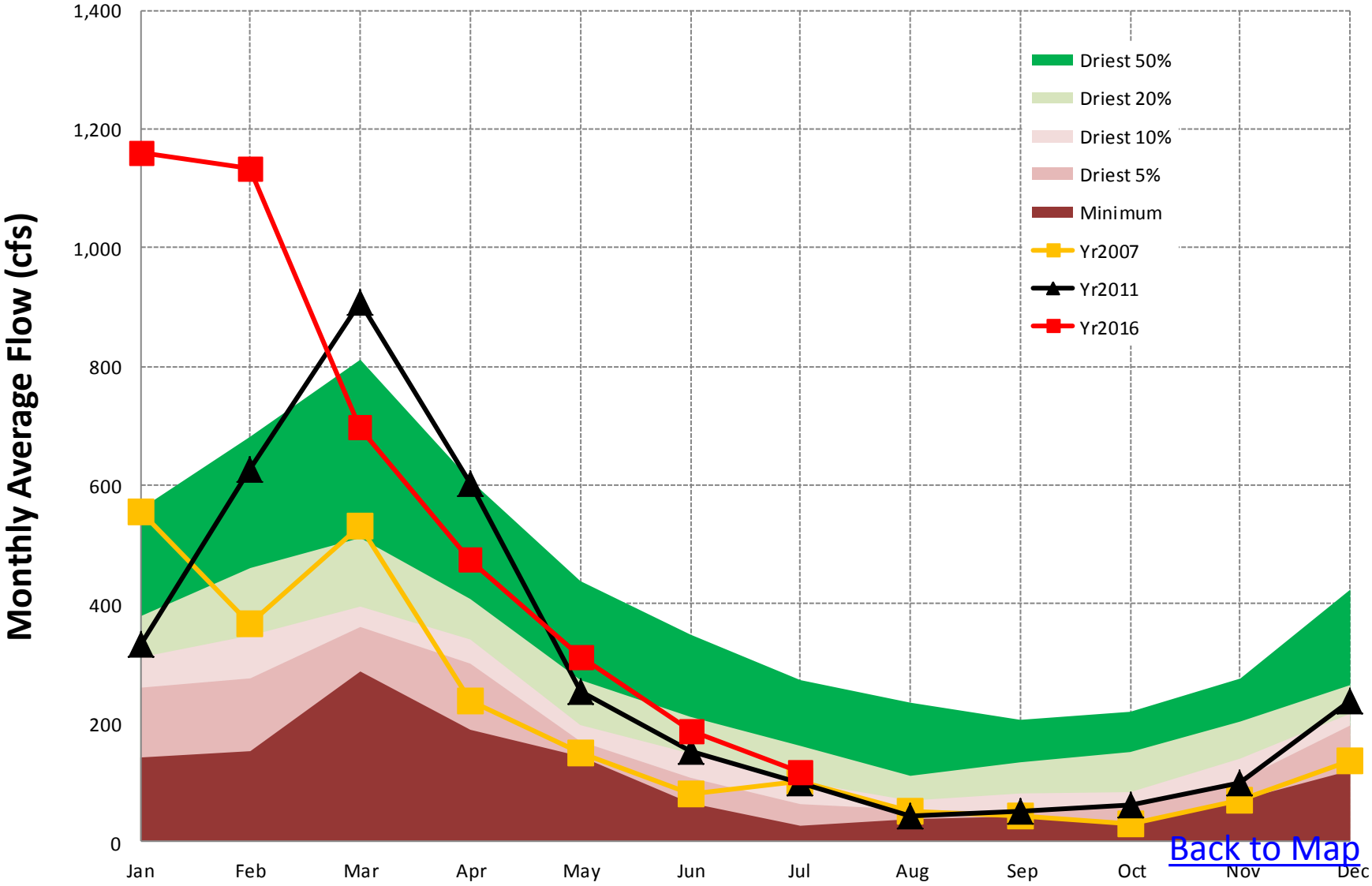
Gage #18. USGS #02217500, Oconee Basin, MIDDLE OCONEE RIVER near ATHENS, GA



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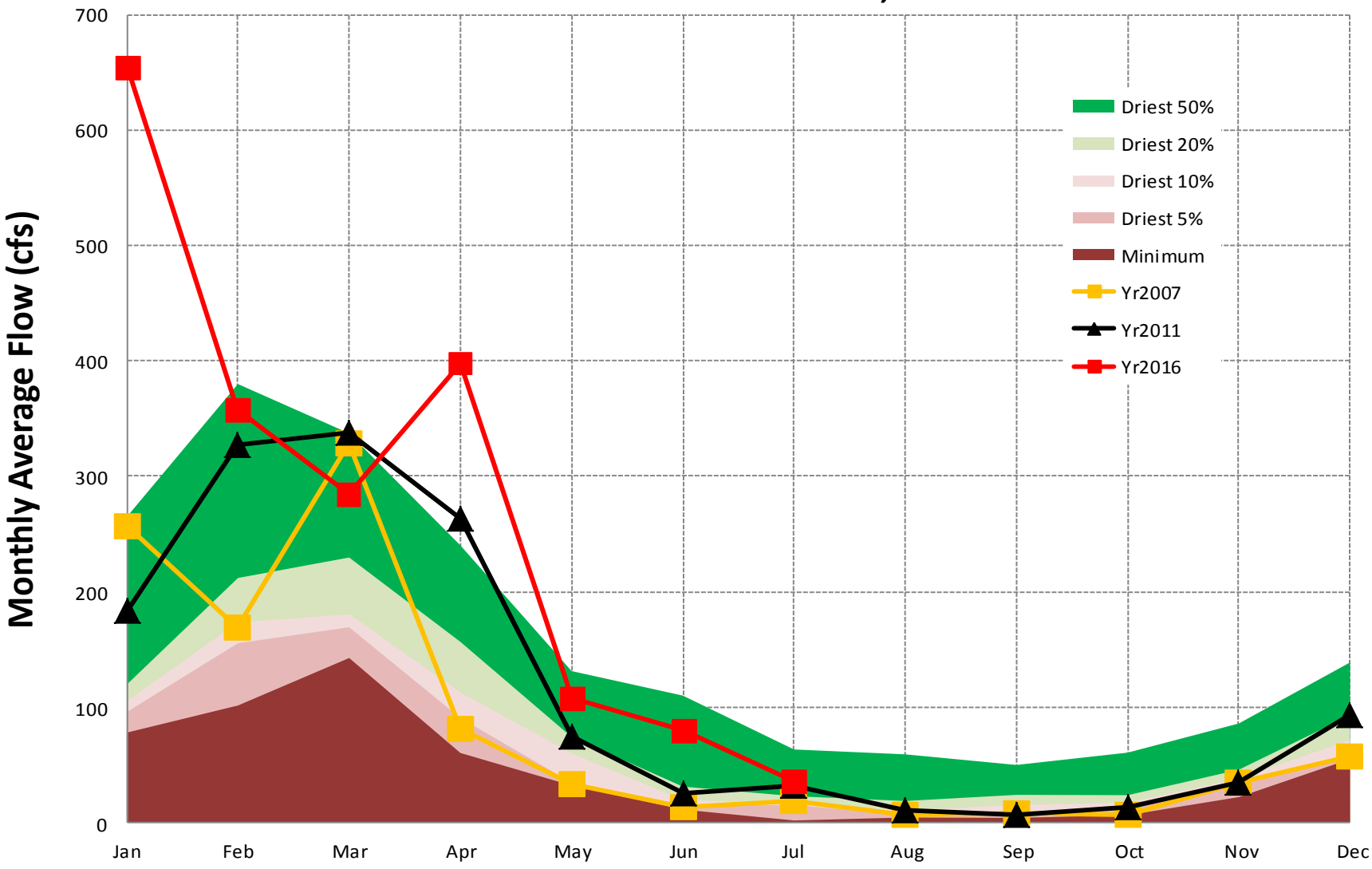
Gage #19. USGS #02220900, Oconee Basin, LITTLE RIVER near EATONTON, GA



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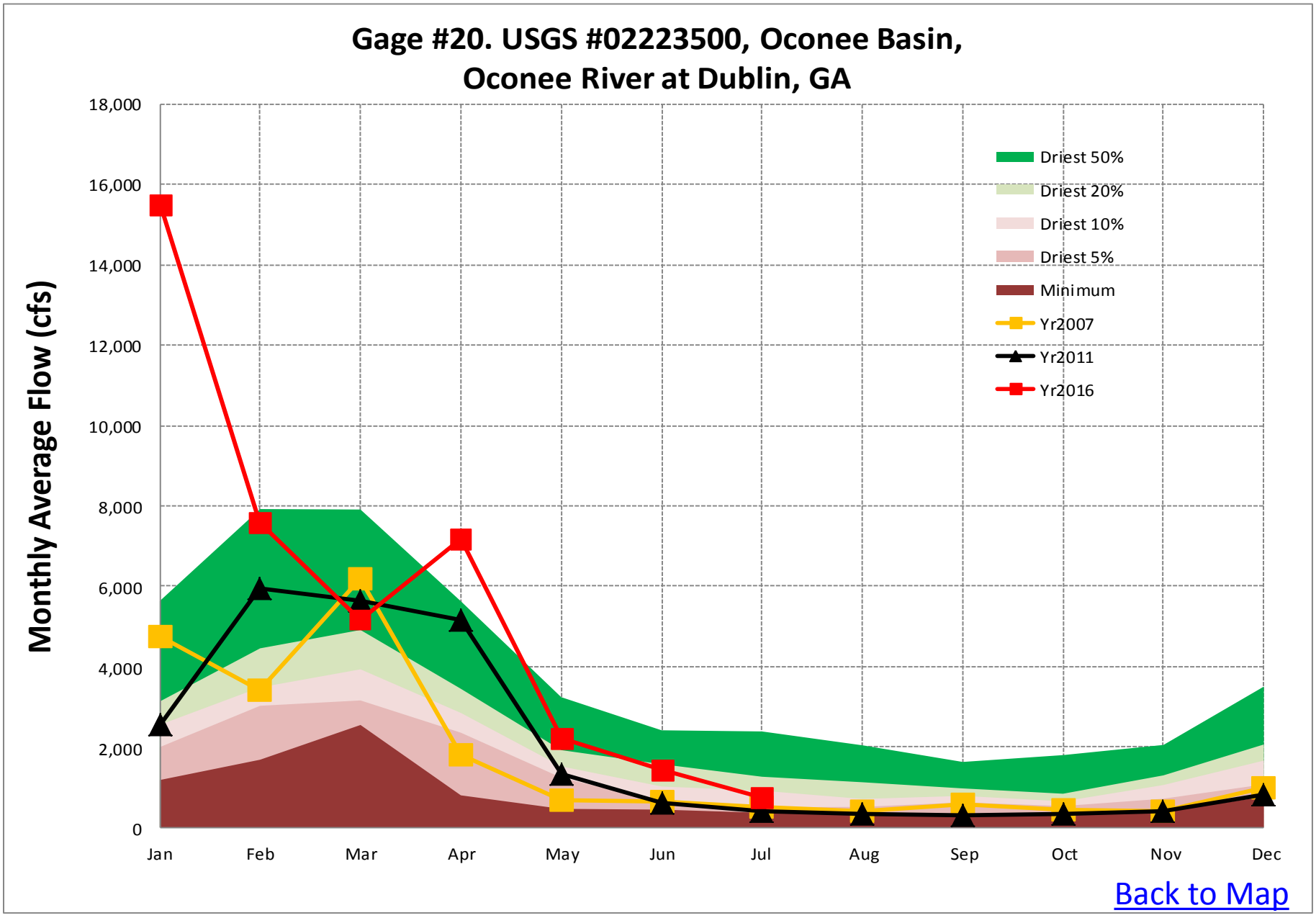
Gage #20. USGS #02223500, Oconee Basin,
Oconee River at Dublin, GA
Monthly Average Flow (cfs)
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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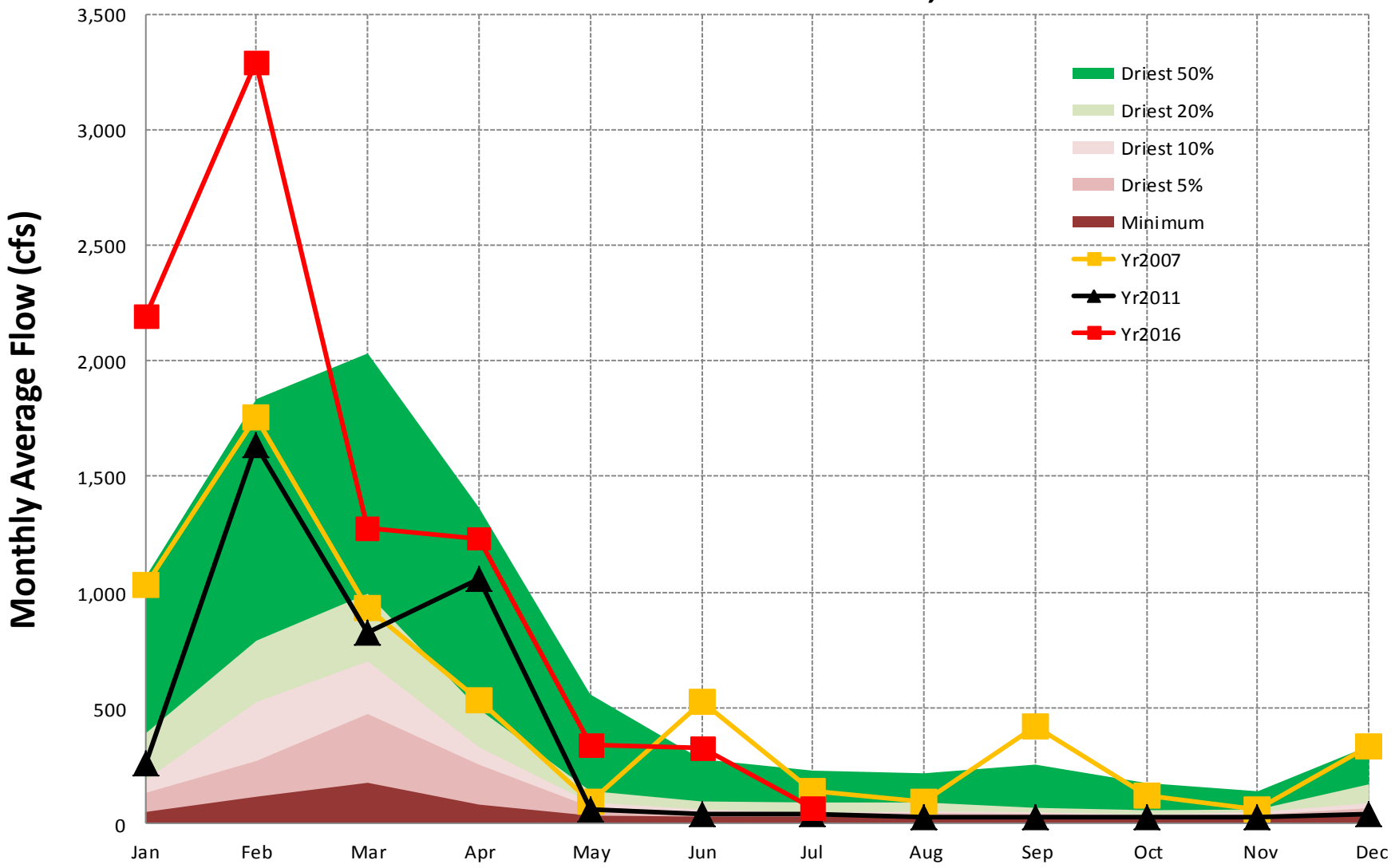
Gage #21. USGS #02225500, Altamaha Basin, OHOOPEE RIVER near REIDSVILLE, GA



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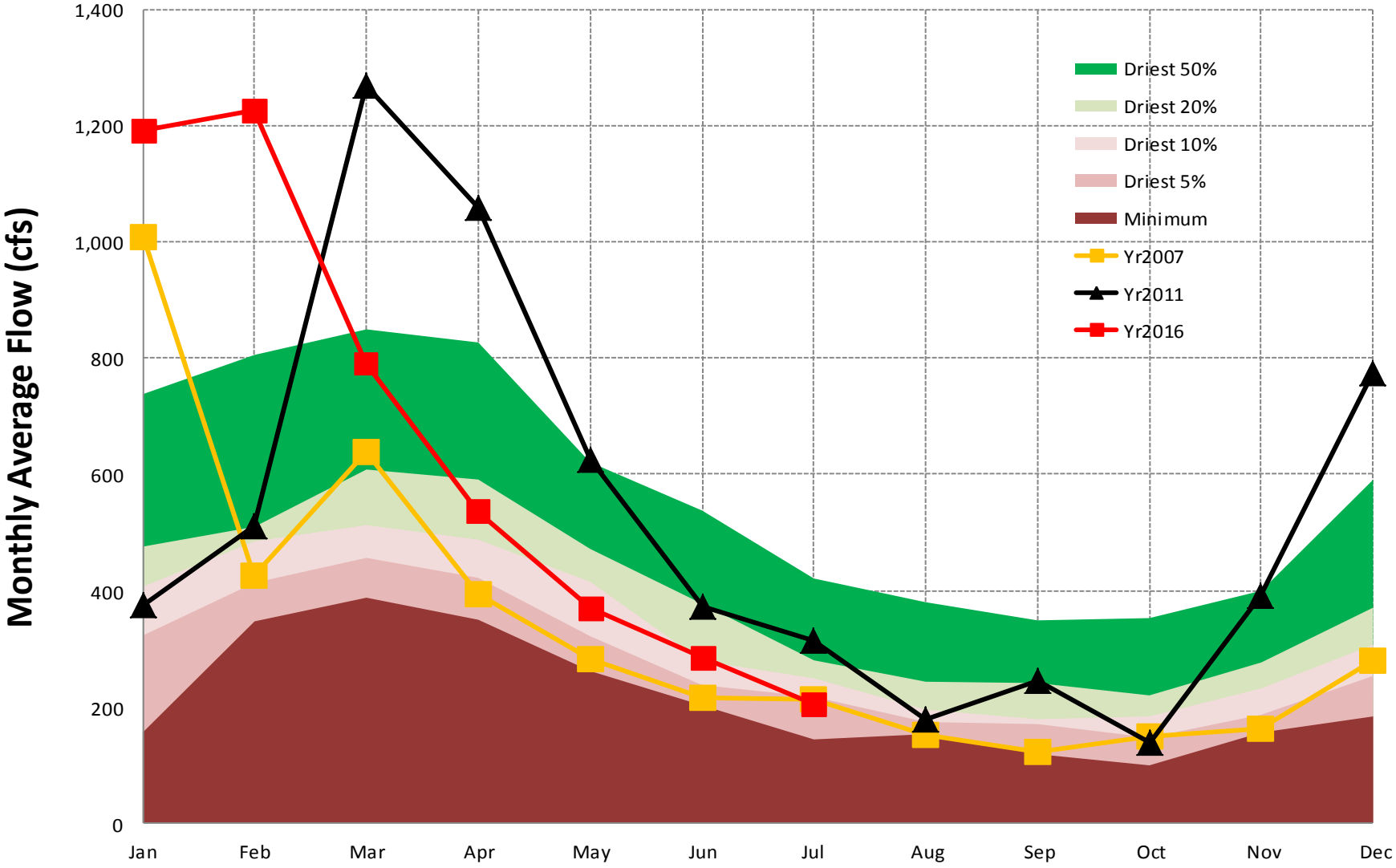
Gage #22. USGS #02177000, Savannah Basin, CHATTOOGA RIVER near CLAYTON, GA



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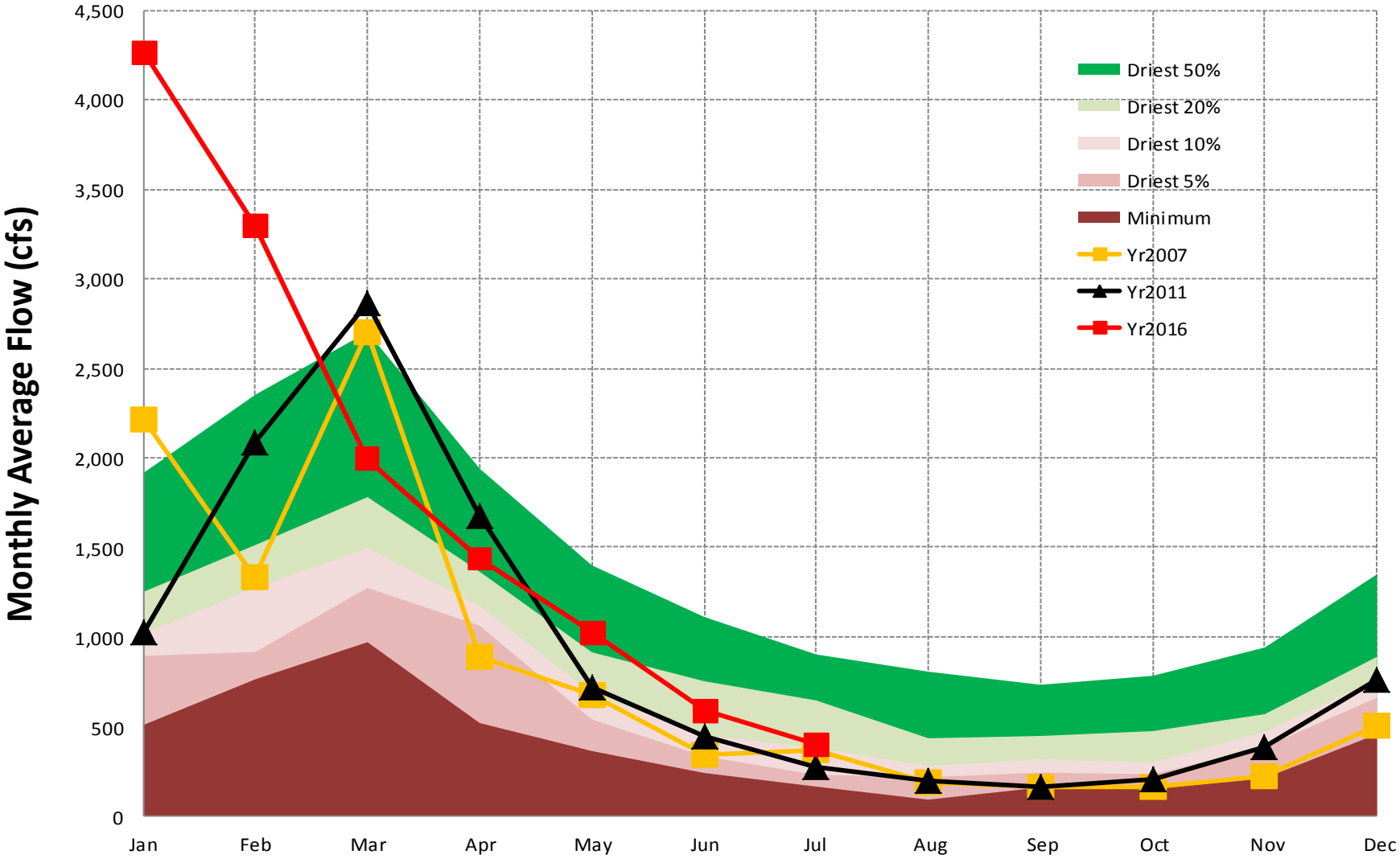
Gage #23. USGS #02192000, Savannah Basin
Broad River near Bell, GA



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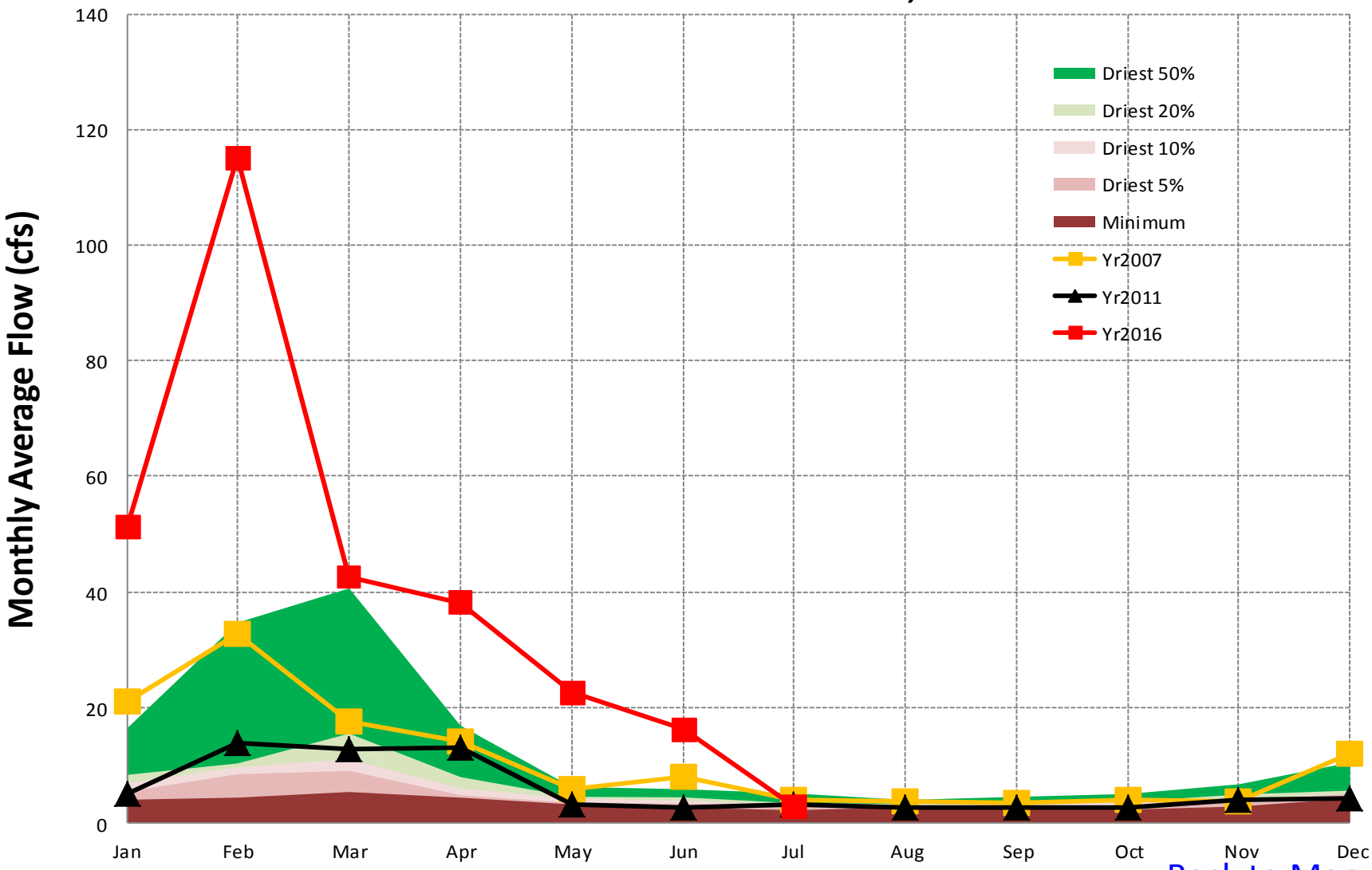
Gage #24. USGS #02198100, Savannah Basin, BEAVERDAM CREEK near SARDIS, GA



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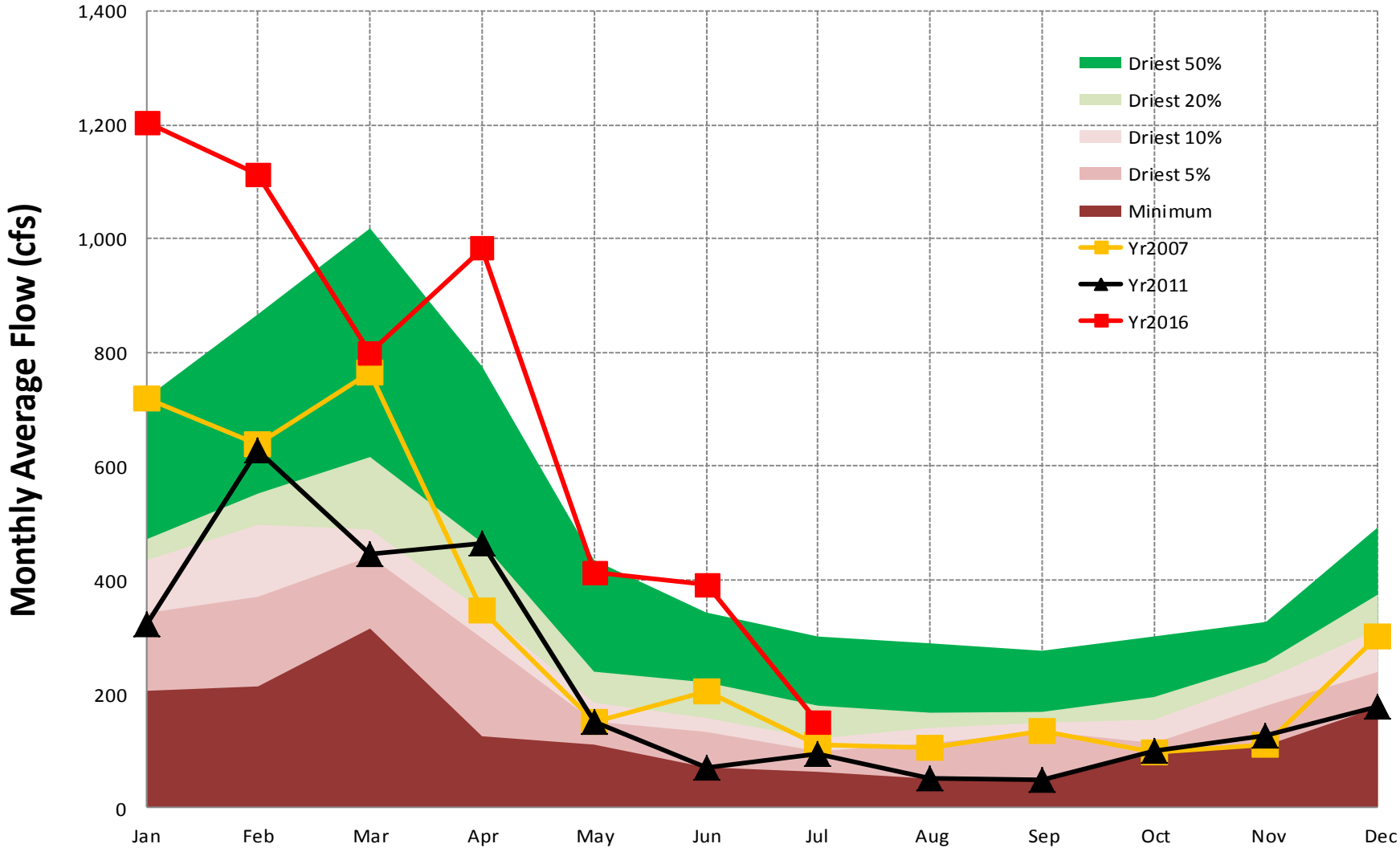
Gage #25. USGS #02198000 , Savannah Basin, BRIER CREEK at MILLHAVEN, GA



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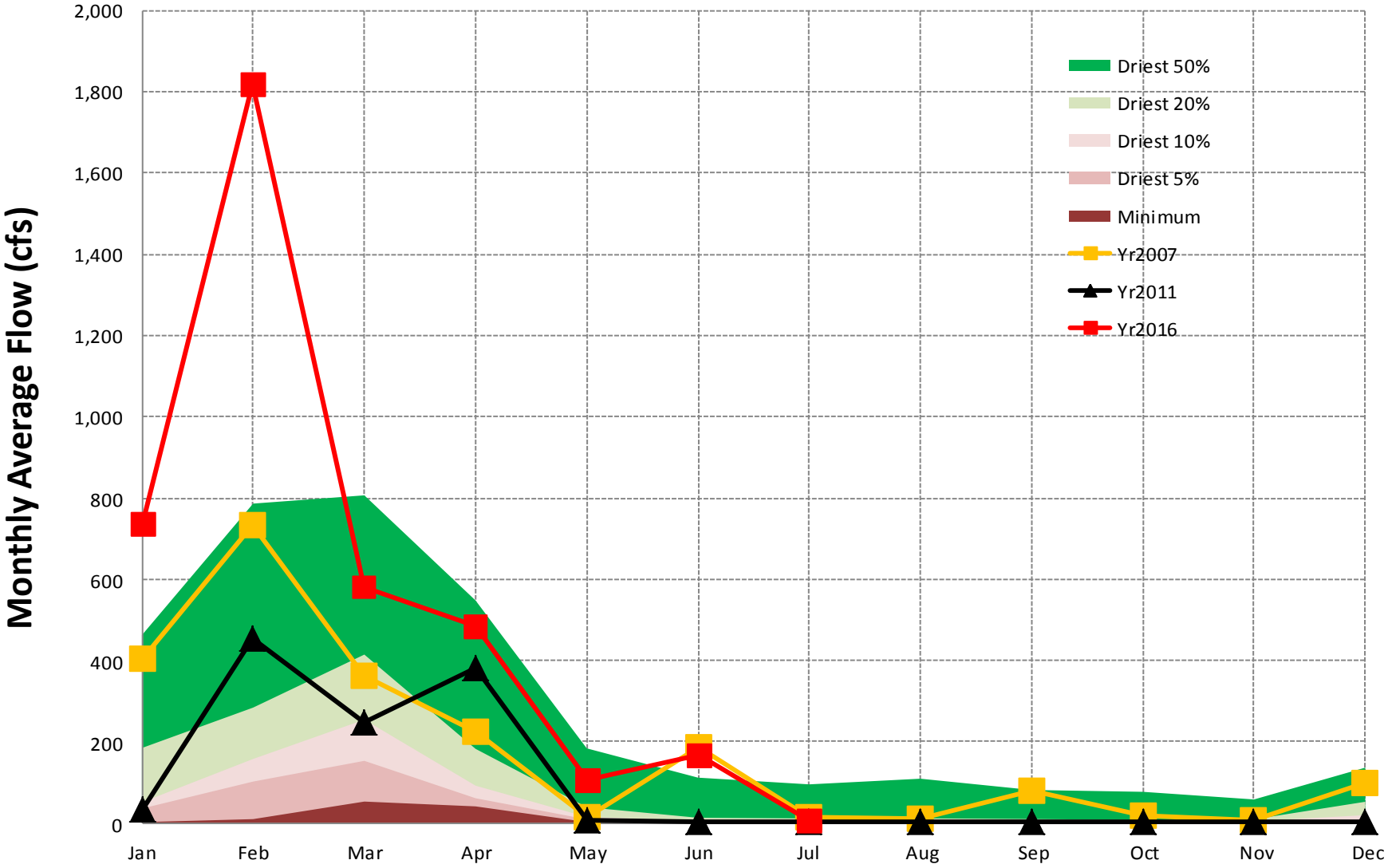
Gage #26. USGS #02203000, Ogeechee Basin, CANOOCHEE RIVER near CLAXTON, GA



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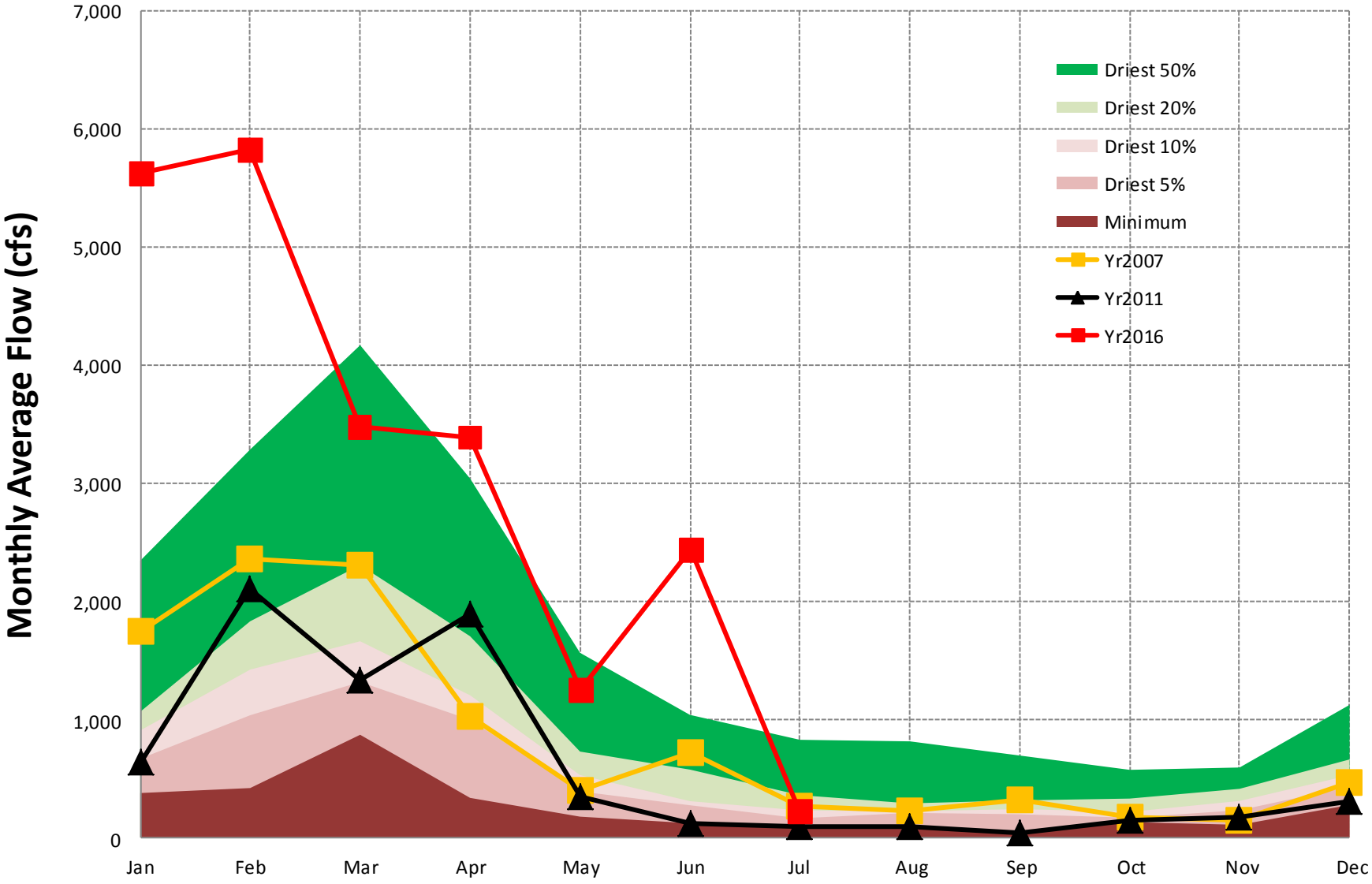
Gage #27. USGS #02202500, Ogeechee Basin, Ogeechee River near Eden, GA



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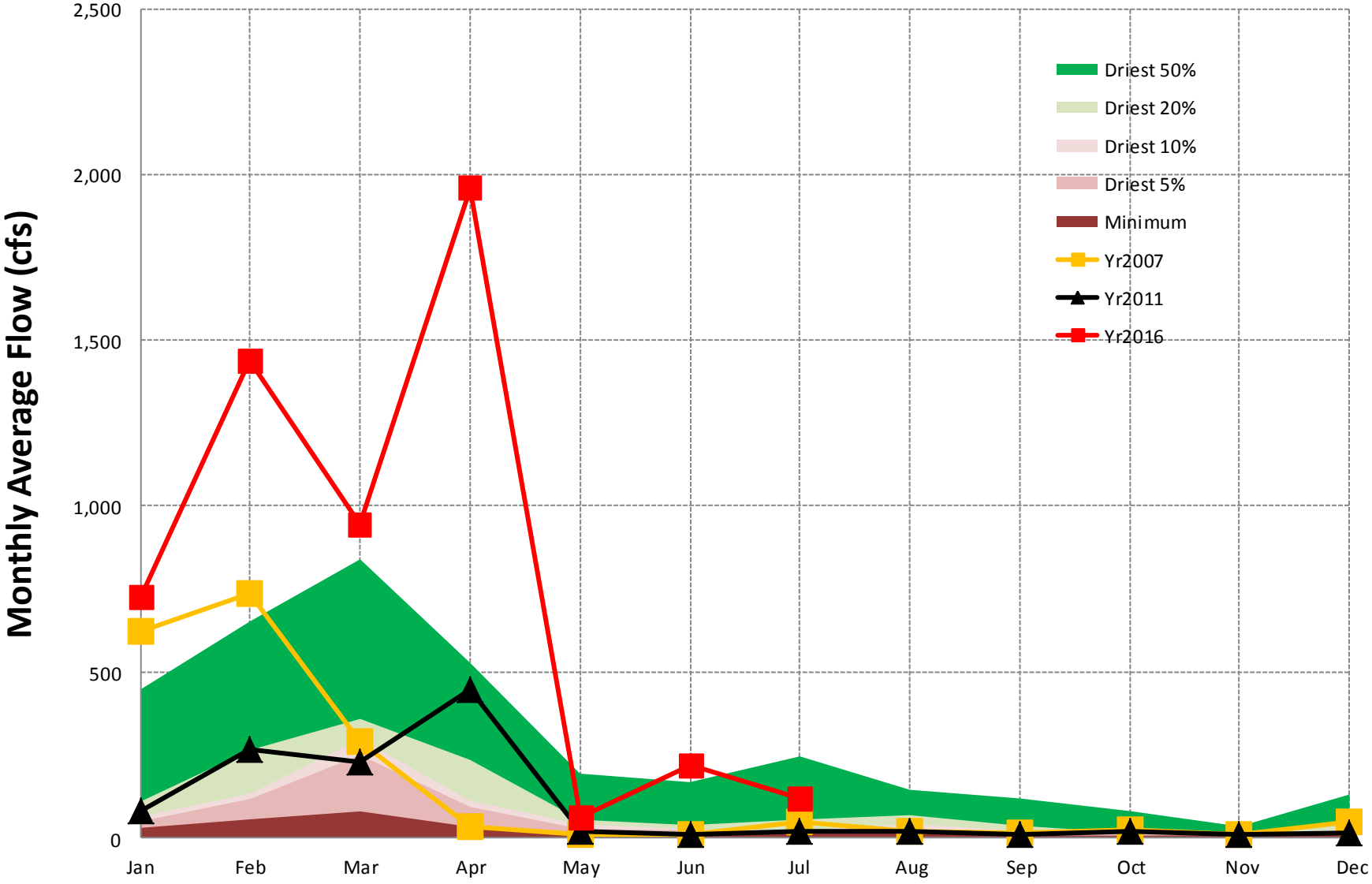
Gage #28. USGS #02327500, Ochlockonee Basin, OCHLOCKONEE RIVER near THOMASVILLE, GA



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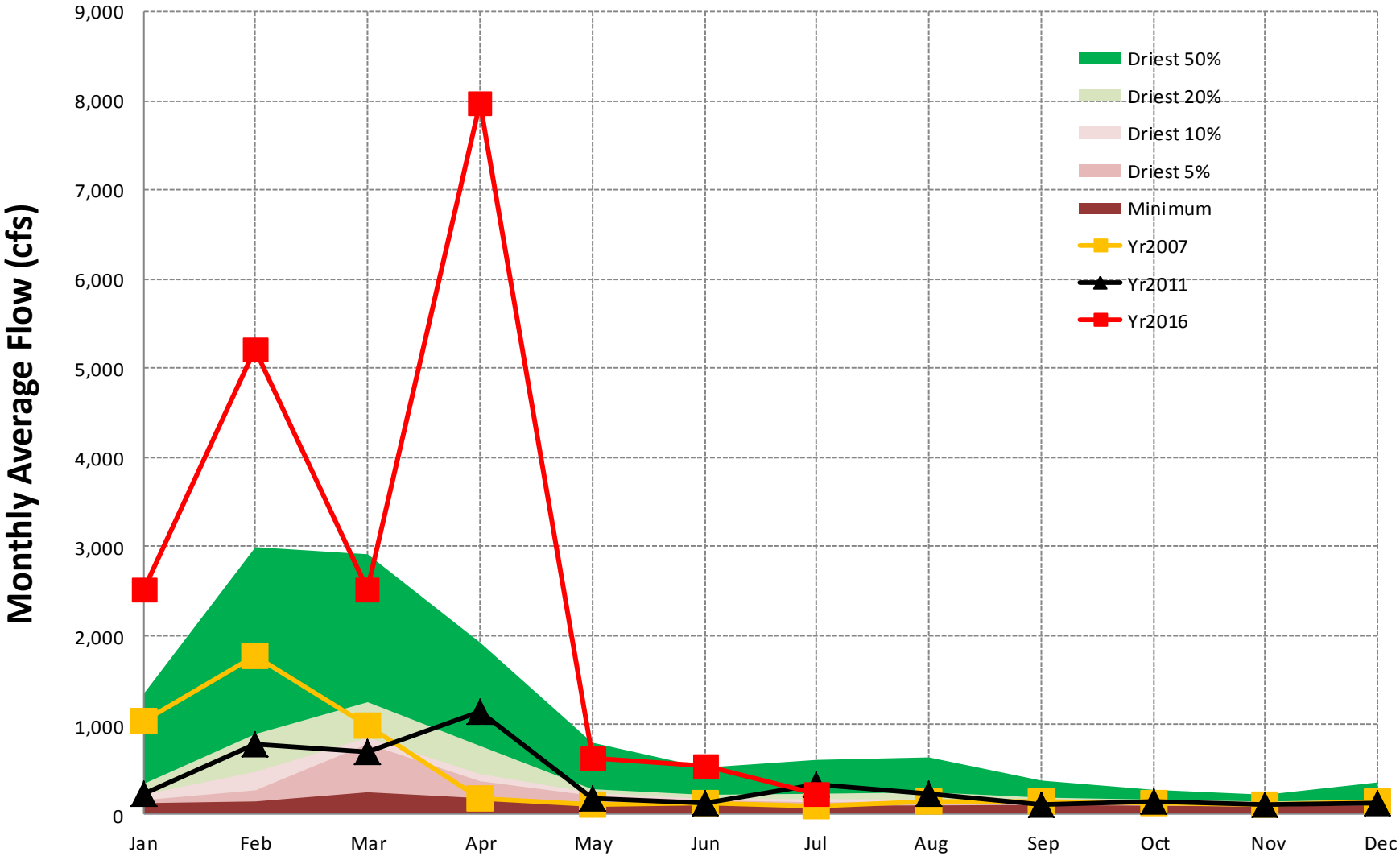
Gage #29. USGS #02319000, Suwanee Basin, WITHLACOOCHEE RIVER near PINETTA, FL



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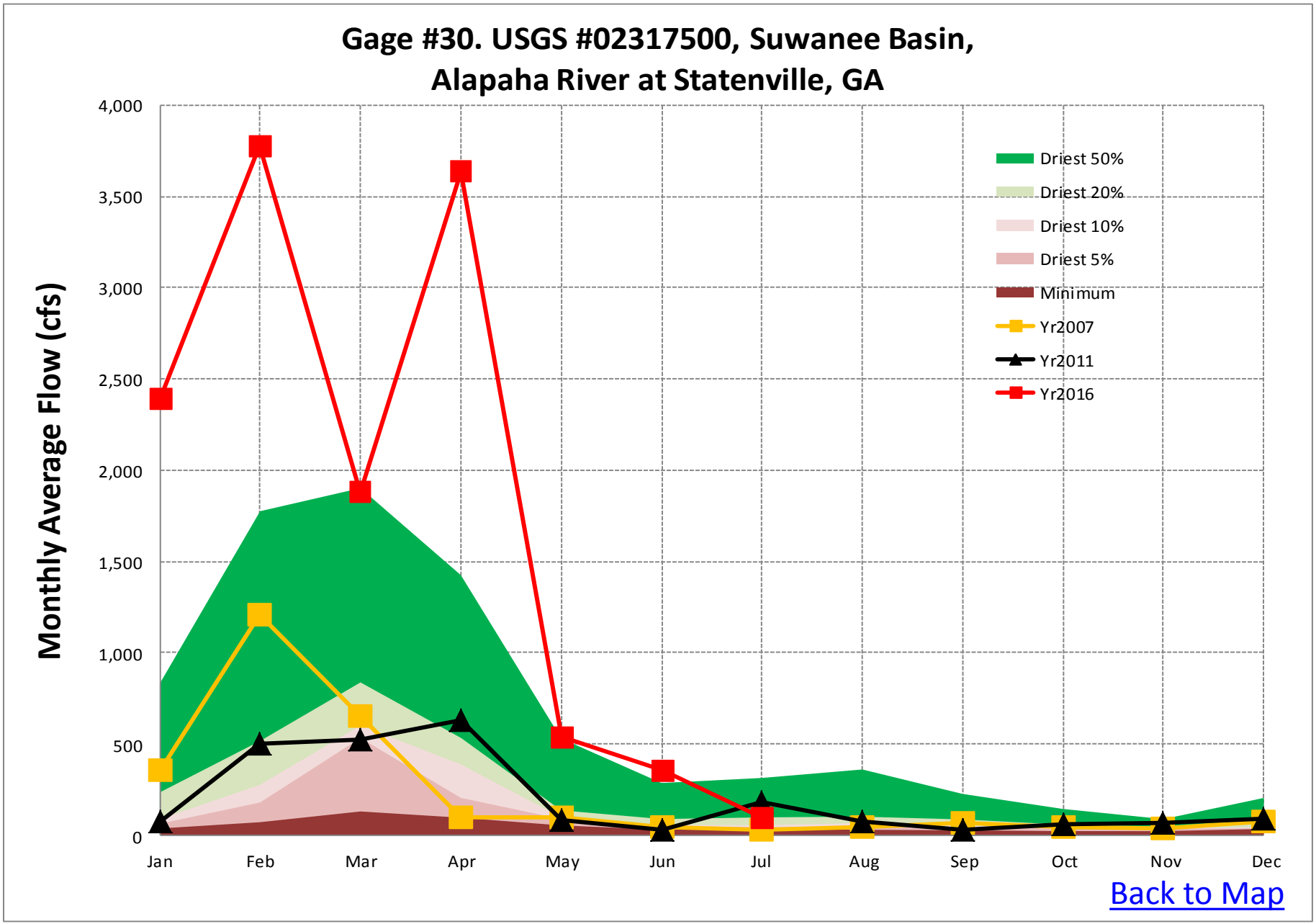
Gage #30. USGS #02317500, Suwanee Basin,
Alapaha River at Statenville, GA
Monthly Average Flow (cfs)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016

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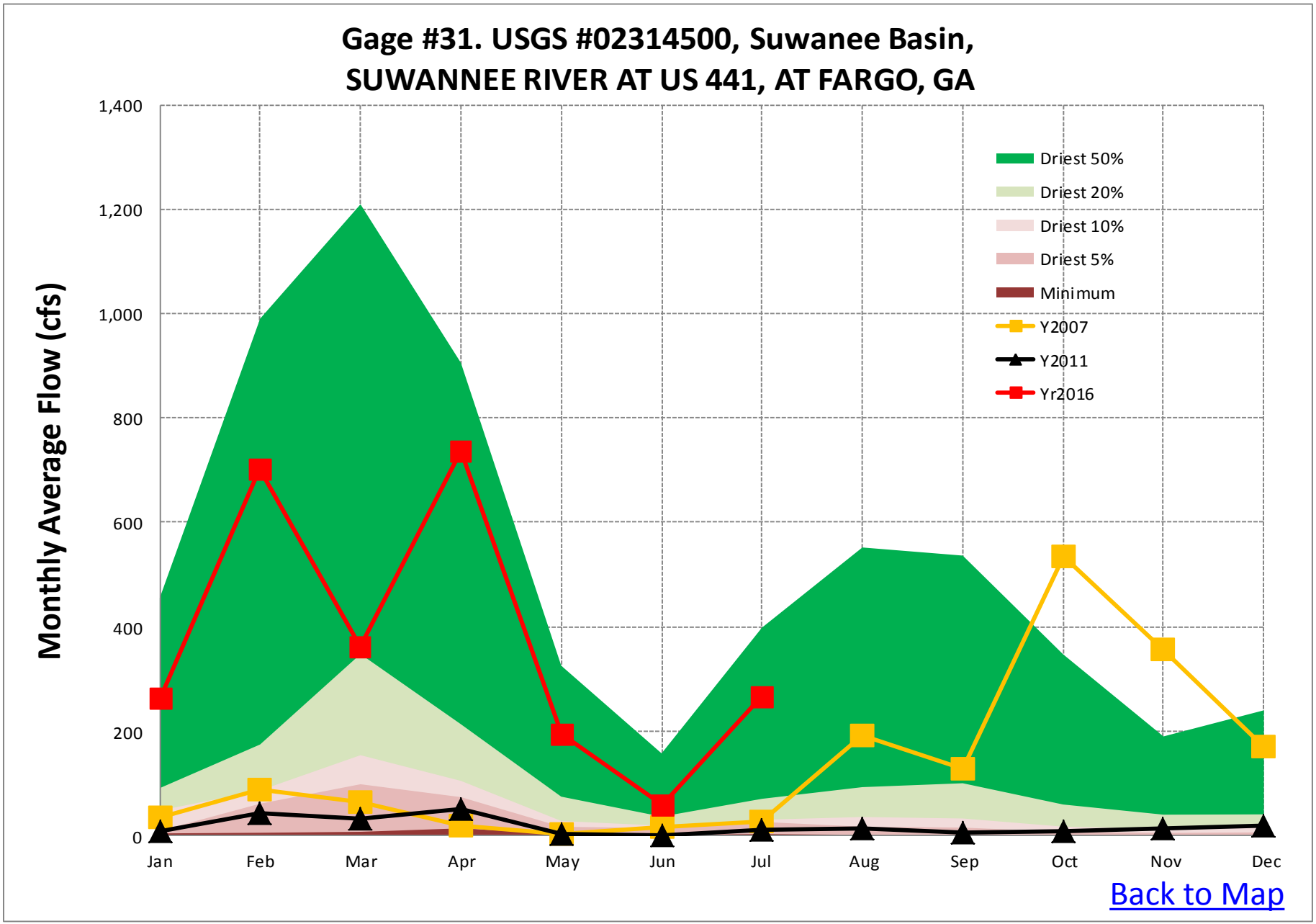
Gage #31. USGS #02314500, Suwanee Basin,
SUWANNEE RIVER AT US 441, AT FARGO, GA
Monthly Average Flow (cfs)
1,400
1,200
1,000
800
600
400
200
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Y2007
Y2011
Yr2016

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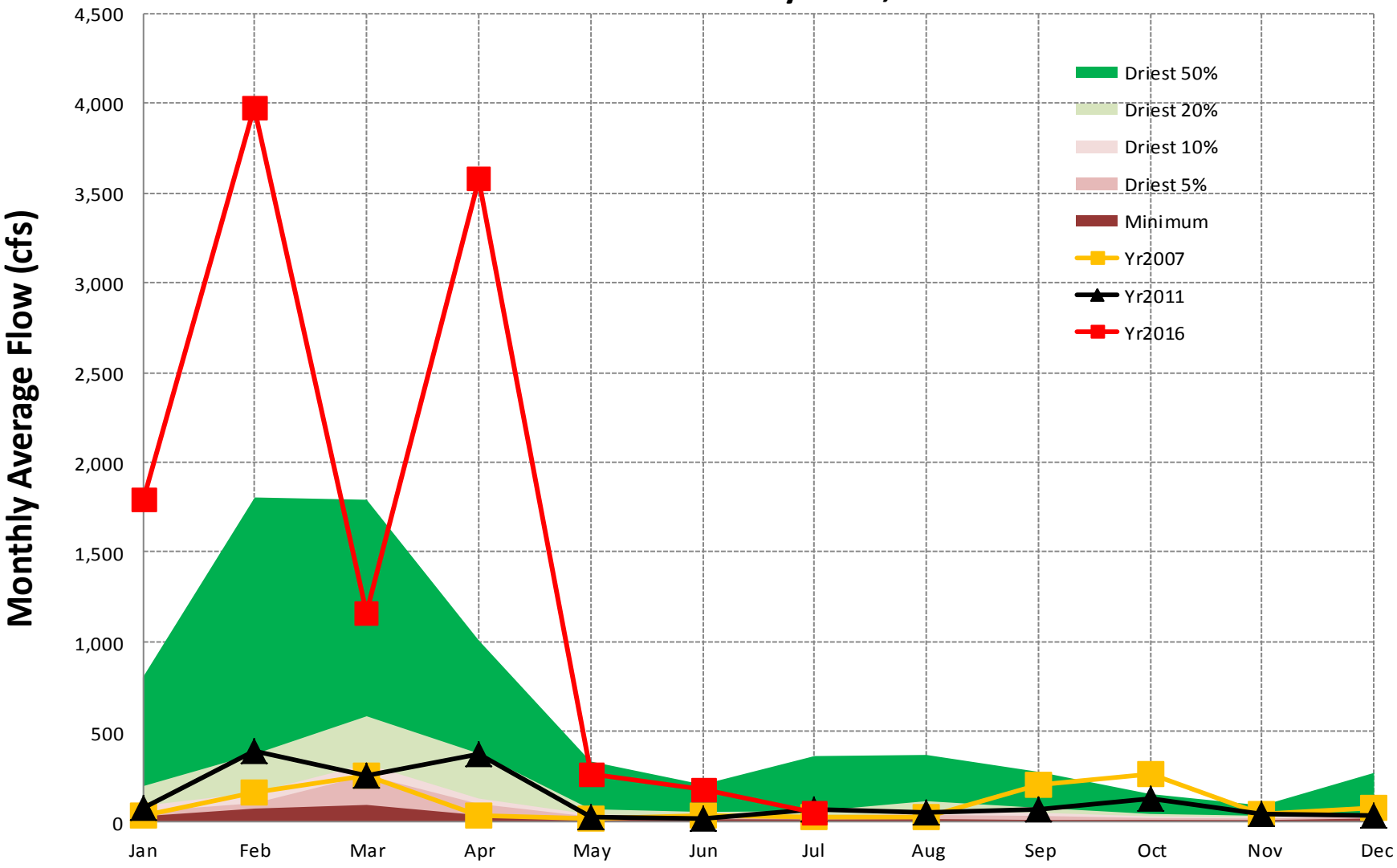
Gage #32. USGS #02226500, Satilla Basin, Satilla River near Waycross, GA



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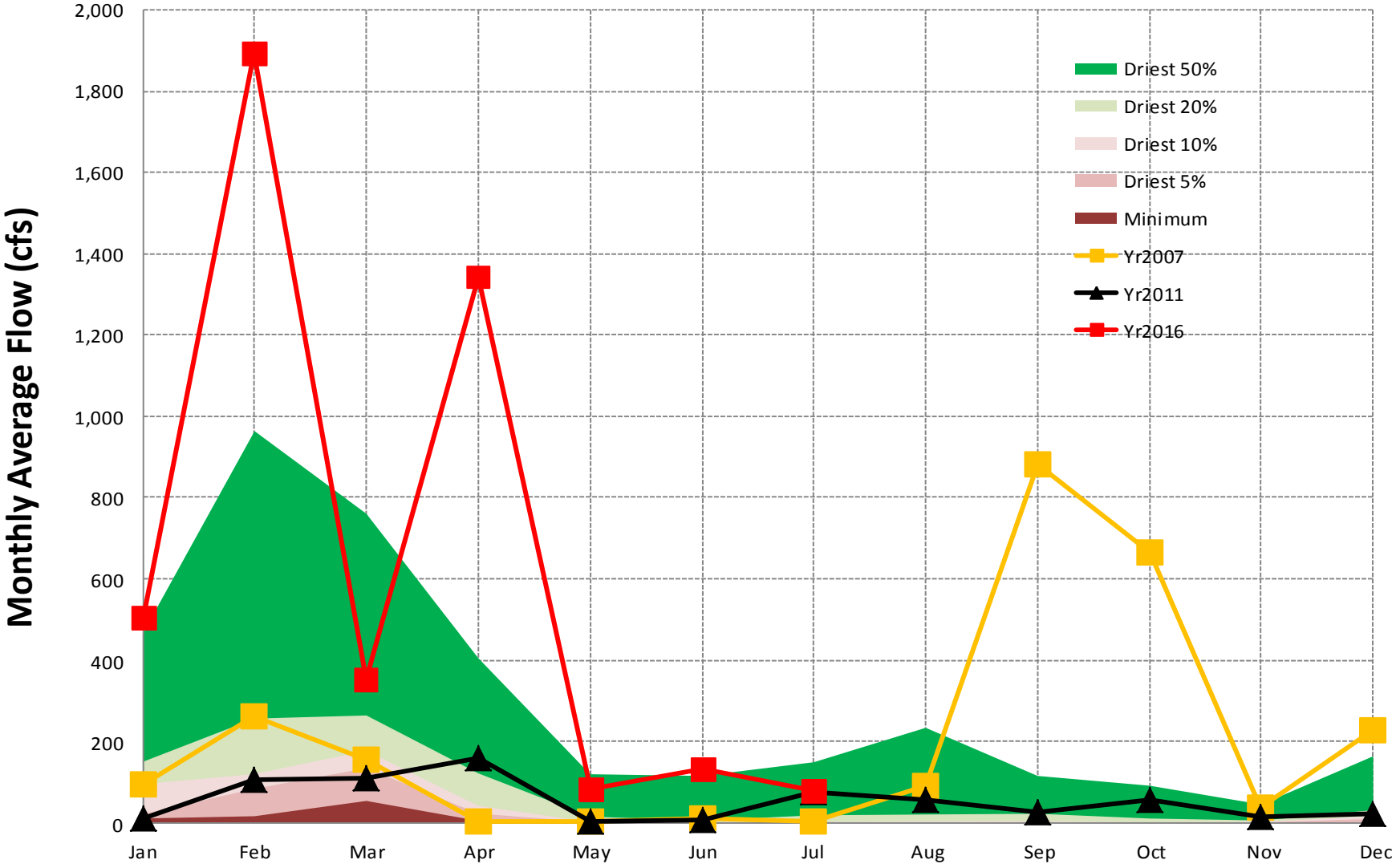
Gage #33. USGS #02227500, Satilla Basin, LITTLE SATILLA RIVER near OFFERMAN, GA



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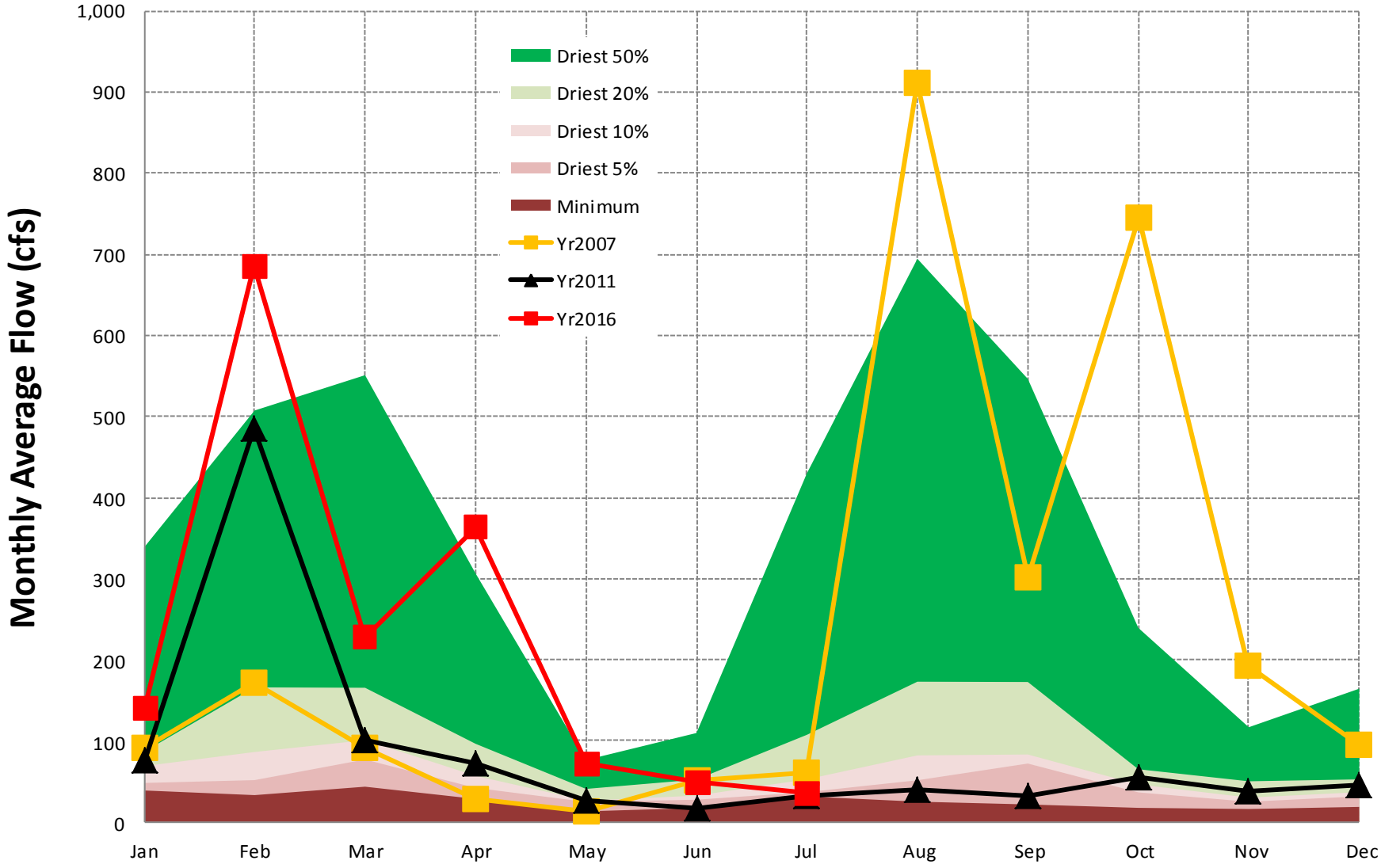
Gage #34. USGS #02231000, St Mary Basin, ST. MARYS RIVER near MACCLENNY, FL



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Groundwater Levels

Data Source: USGS

Rationale for Choosing USGS Monitoring Wells

EPD monitors 14 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 by EPD to Assess Drought Conditions

Flint Basin

1. 11AA01
2. 09M007
3. 13L180
4. 12M017
5. 08K001
6. 11K003
7. 12K014
8. 13J004
9. 08G001
10. 10G313
11. 09F520

Oconee Basin

12. 21T001

Altamaha Basin

13. 26R001

Savannah Basin

14. 30AA04

Suwanee Basin

15. 19E009

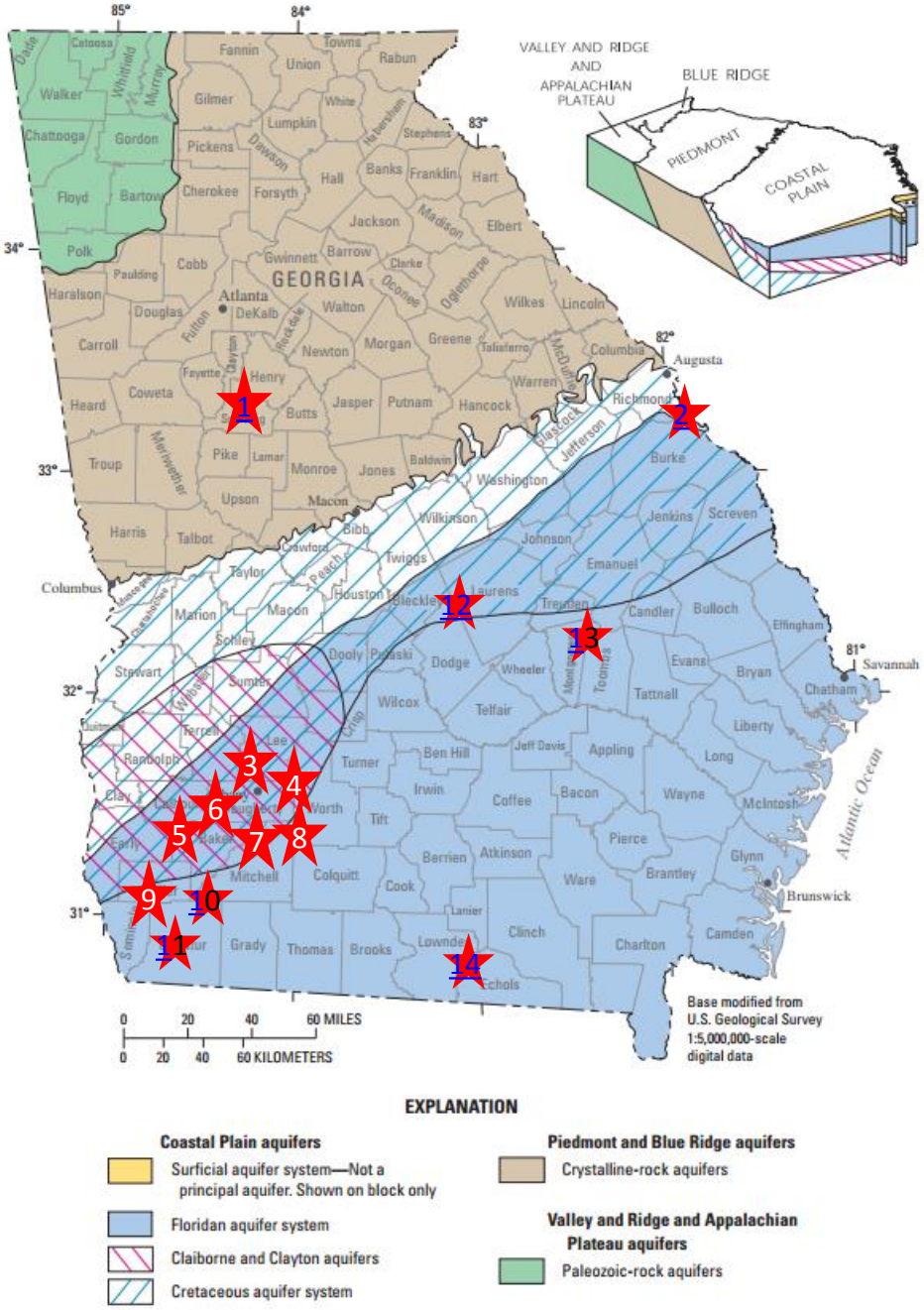


Figure 2. Area of use of principal aquifers and physiographic provinces in Georgia (modified from U.S. Geological Survey, 2006).

Groundwater Level Graphs

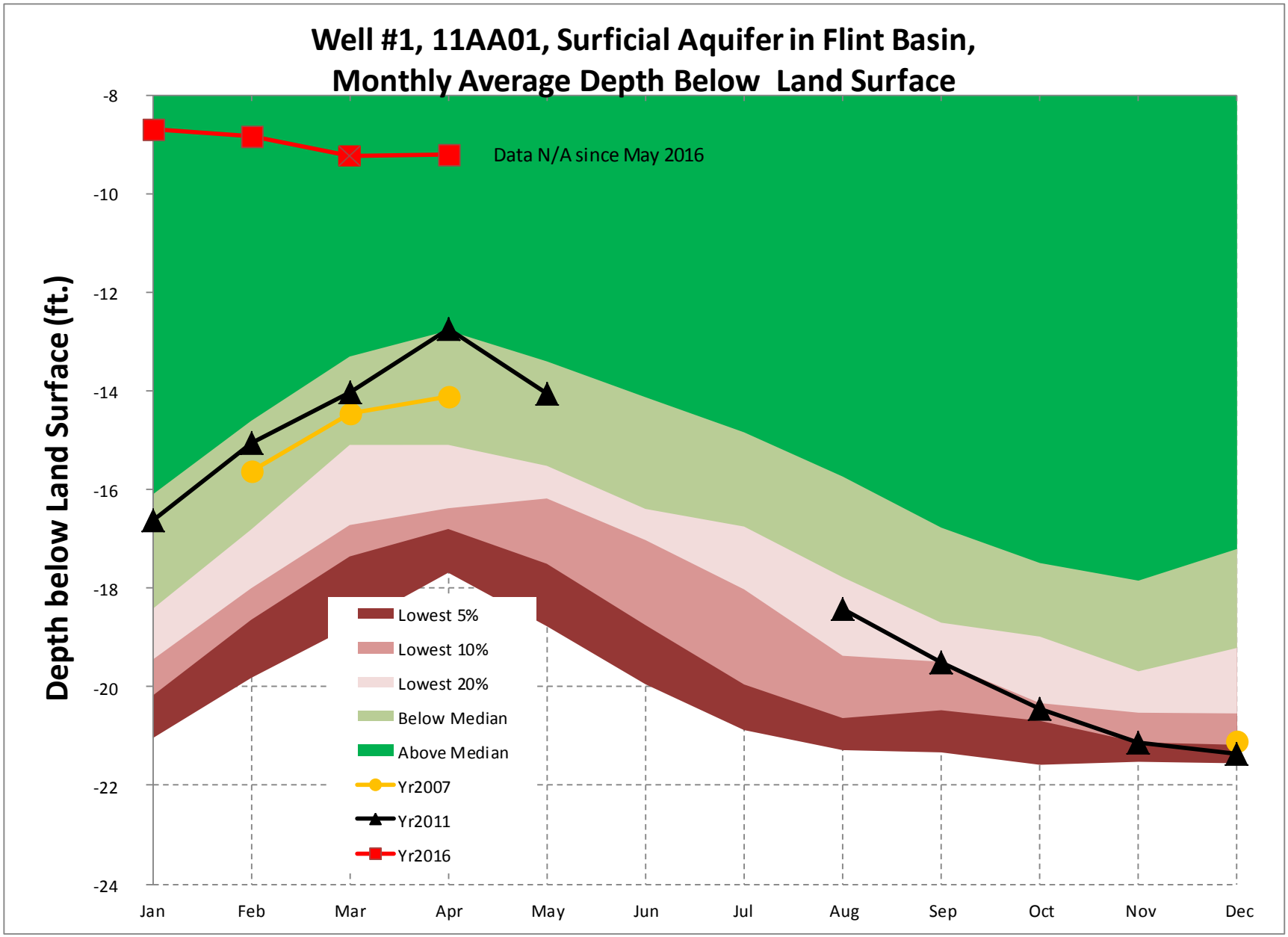
- For each of the 15 groundwater wells, EPD has prepared a graph that shows monthly average groundwater levels from January 1, 2016 through July 31, 2016;
- To help put these levels into perspective, for comparison purposes, each graph also shows:
  - Monthly average levels at that same well for the 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 July 2016 was 46ft below land surface. The statistical composite of all historical data for this well shows that monthly average groundwater levels in July have historically been lower than July 2016 about 50% of the time; about 50% of the time in July they have been higher.
- The average monthly groundwater level in July 2011 was 52ft below land surface. The statistical composite of all historical data for this well shows that average monthly groundwater elevation levels for July equal to the historically lowest recorded average elevation for July.
- The average monthly groundwater level in July 2007 was 52ft below land surface. The statistical composite of all historical data for this well shows that average monthly groundwater elevation levels for July equal to the historically lowest recorded average elevation for July.
- The lowest recorded average monthly groundwater level for July was 52.2ft below land surface.


Well #1, 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
Data N/A since May 2016
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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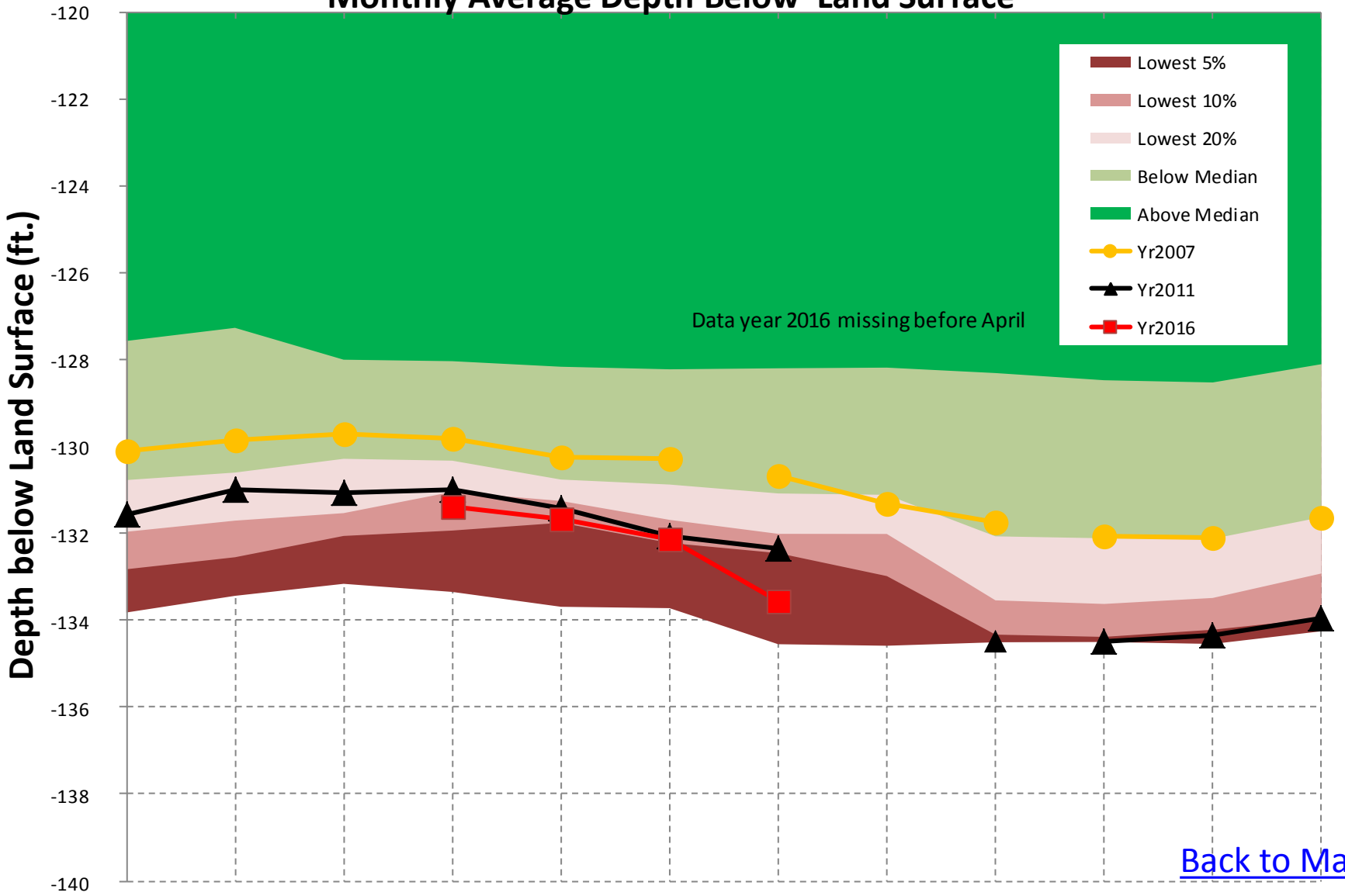
Well #13, 30AA04, Gordon & Dublin Aquifers in Savannah Basin, Monthly Average Depth Below Land Surface



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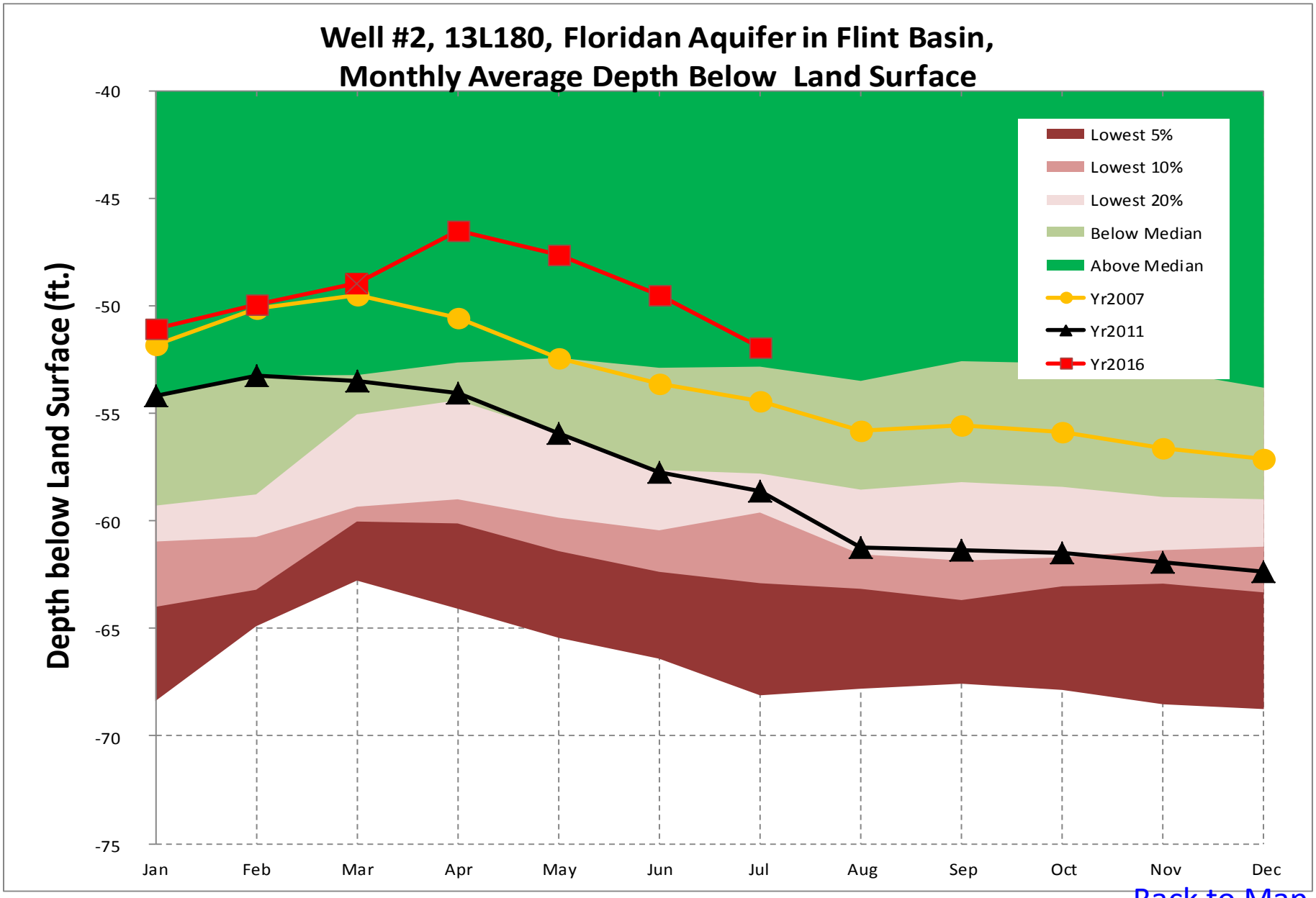
Well #2, 13L180, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-40
-45
-50
-55
-60
-65
-70
-75
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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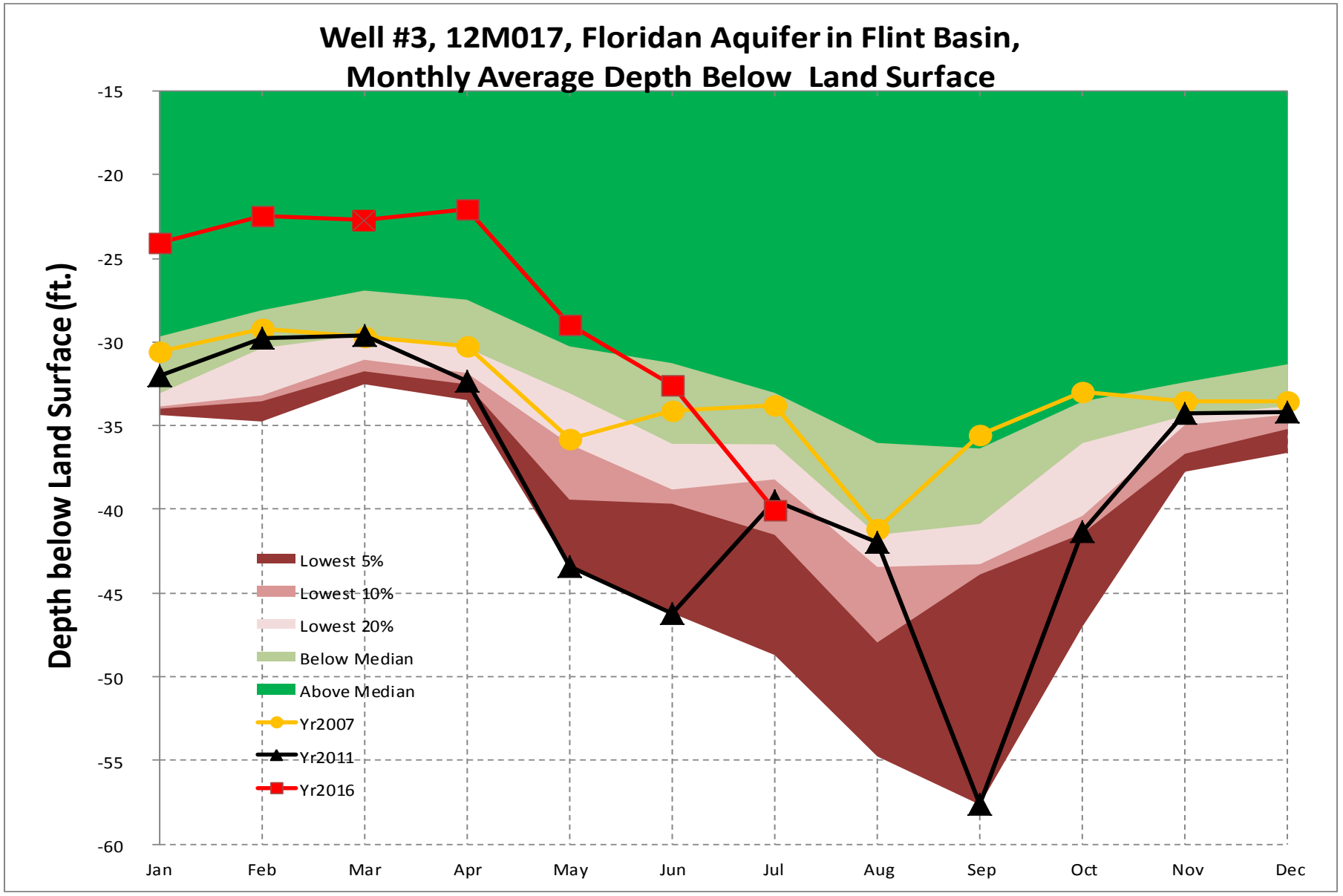
Well #3, 12M017, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-15
-20
-25
-30
-35
-40
-45
-50
-55
-60
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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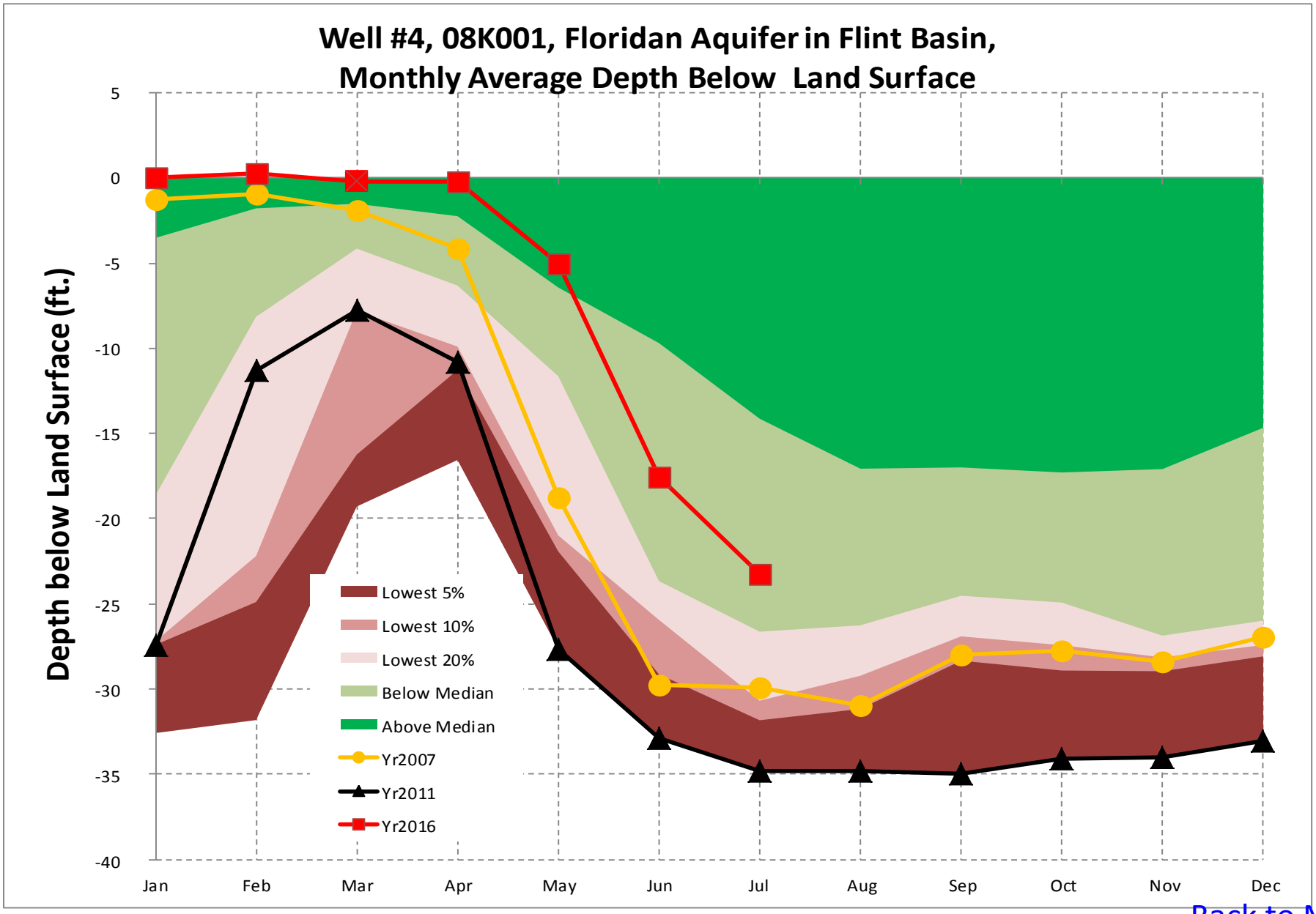
Well #4, 08K001, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
5
0
-5
-10
-15
-20
-25
-30
-35
-40
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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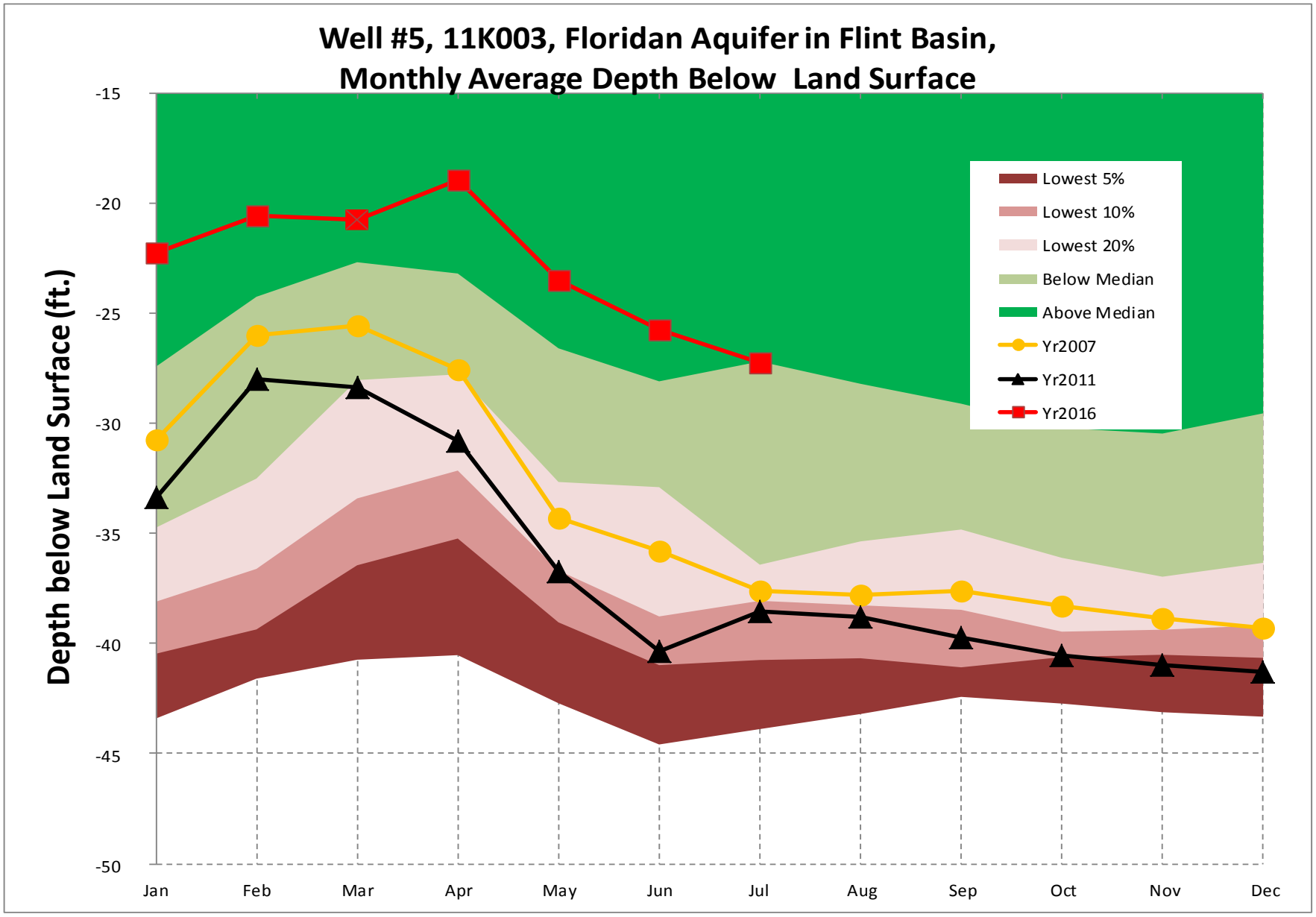
Well #5, 11K003, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-15
-20
-25
-30
-35
-40
-45
-50
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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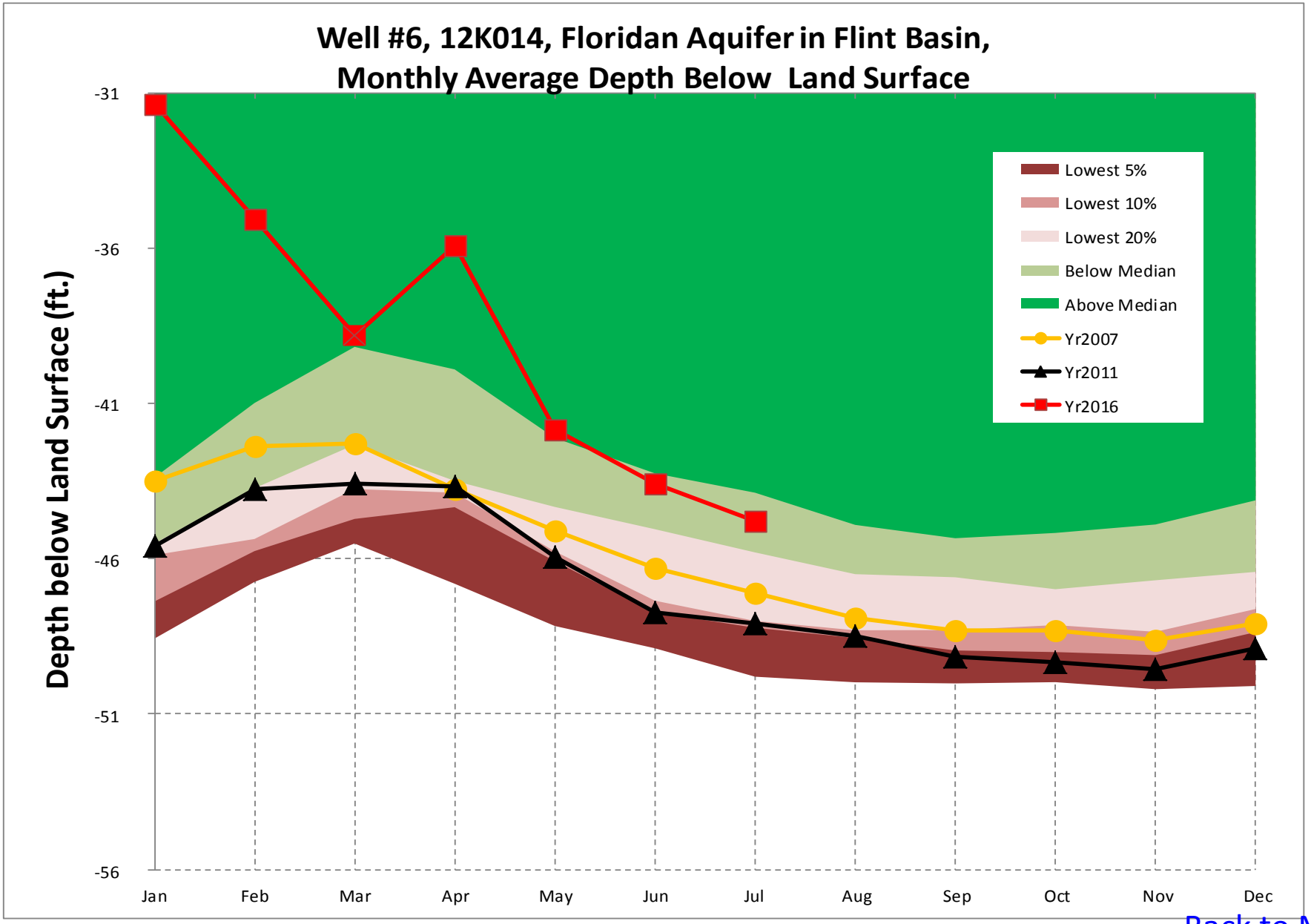
Well #6, 12K014, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-31
-36
-41
-46
-51
-56
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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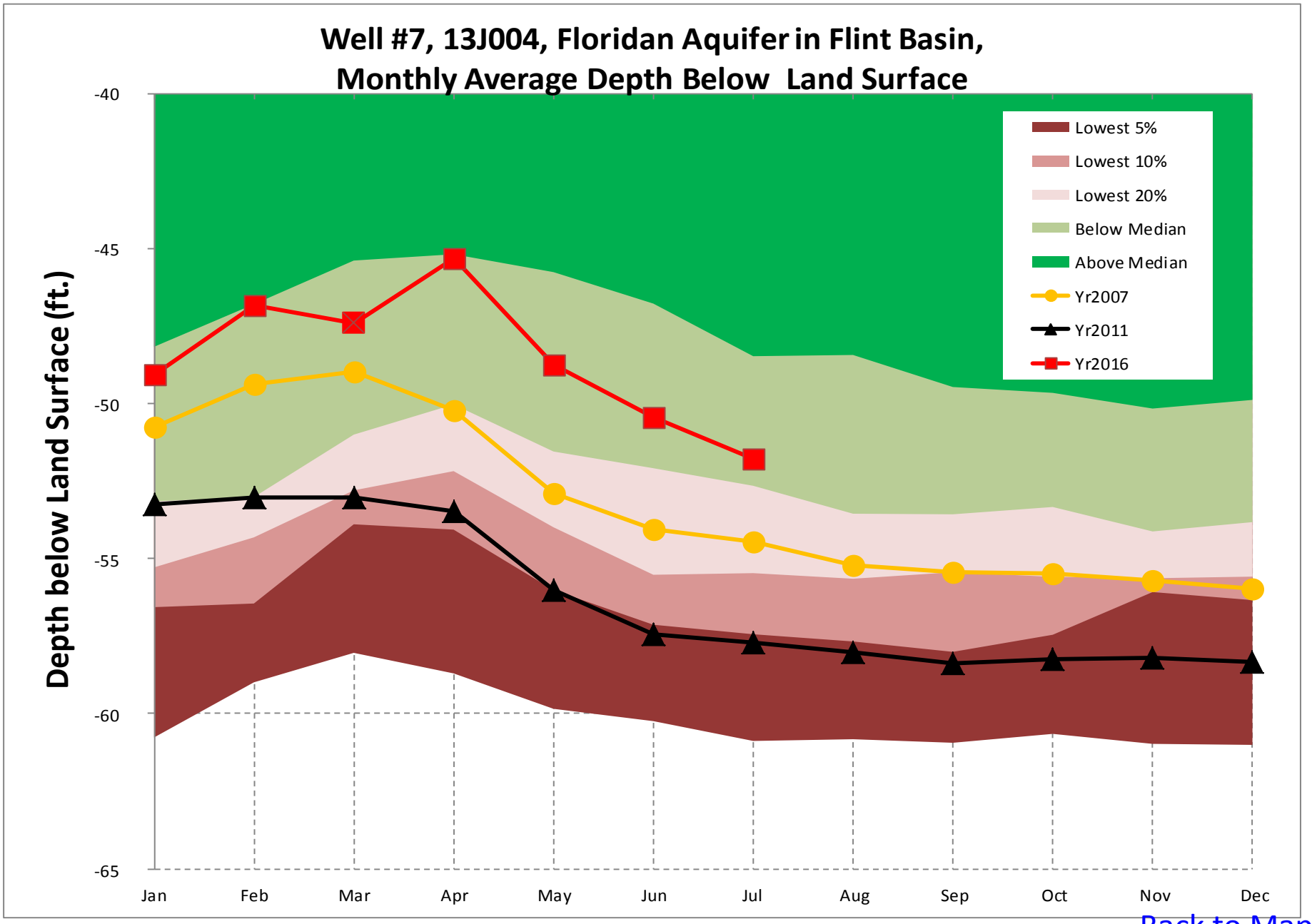
Well #7, 13J004, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-40
-45
-50
-55
-60
-65
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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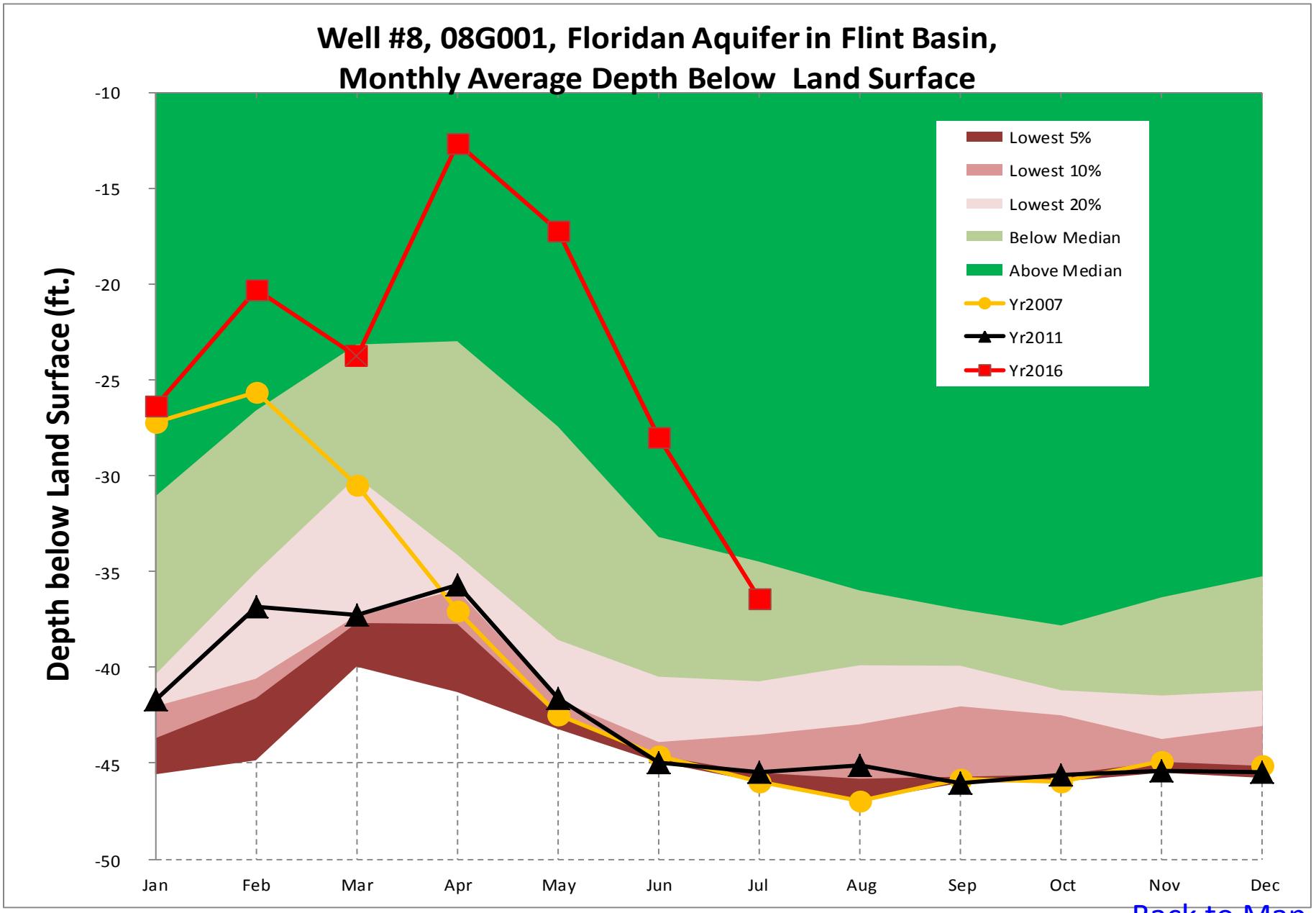
Well #8, 08G001, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-10
-15
-20
-25
-30
-35
-40
-45
-50
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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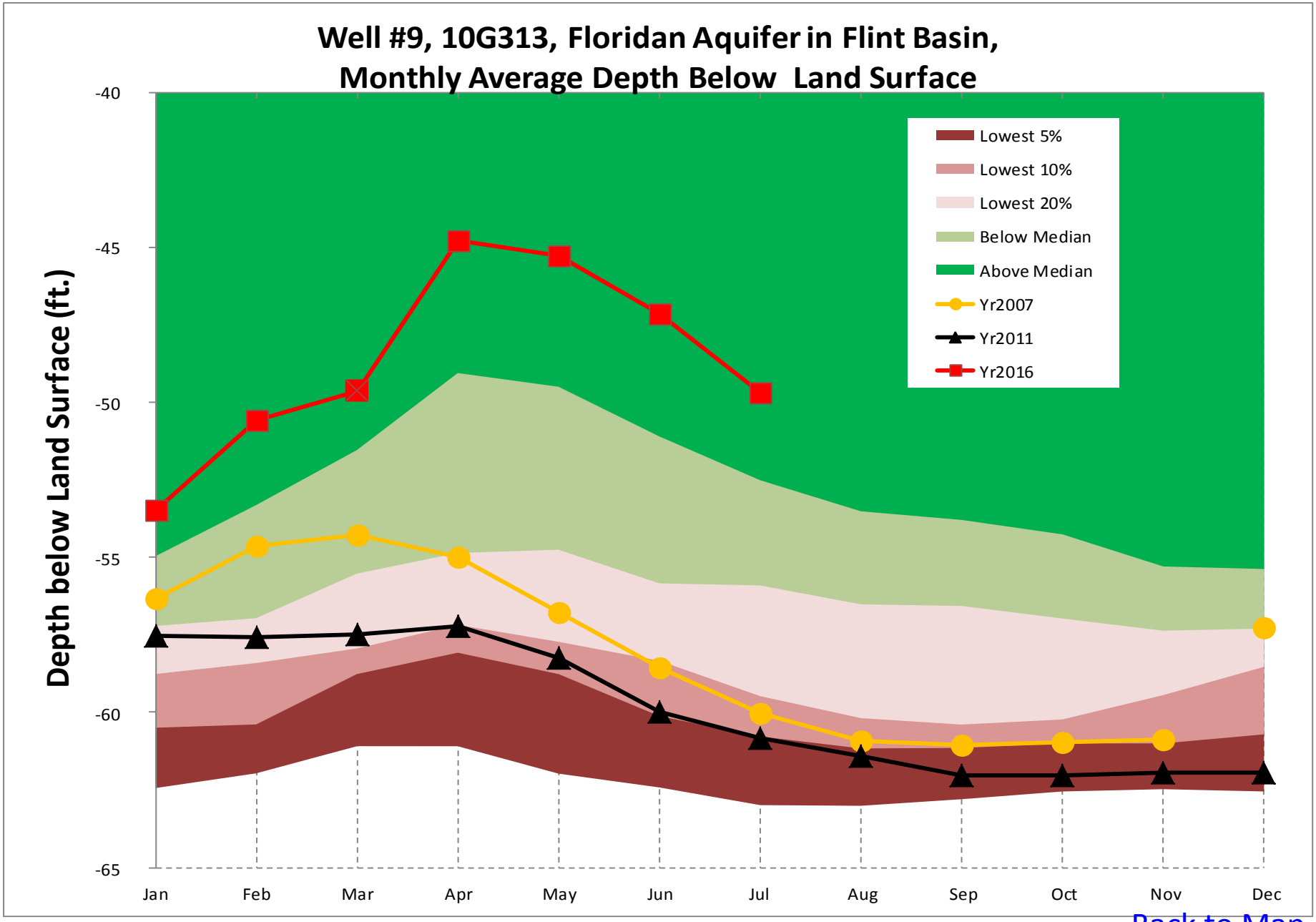
Well #9, 10G313, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-40
-45
-50
-55
-60
-65
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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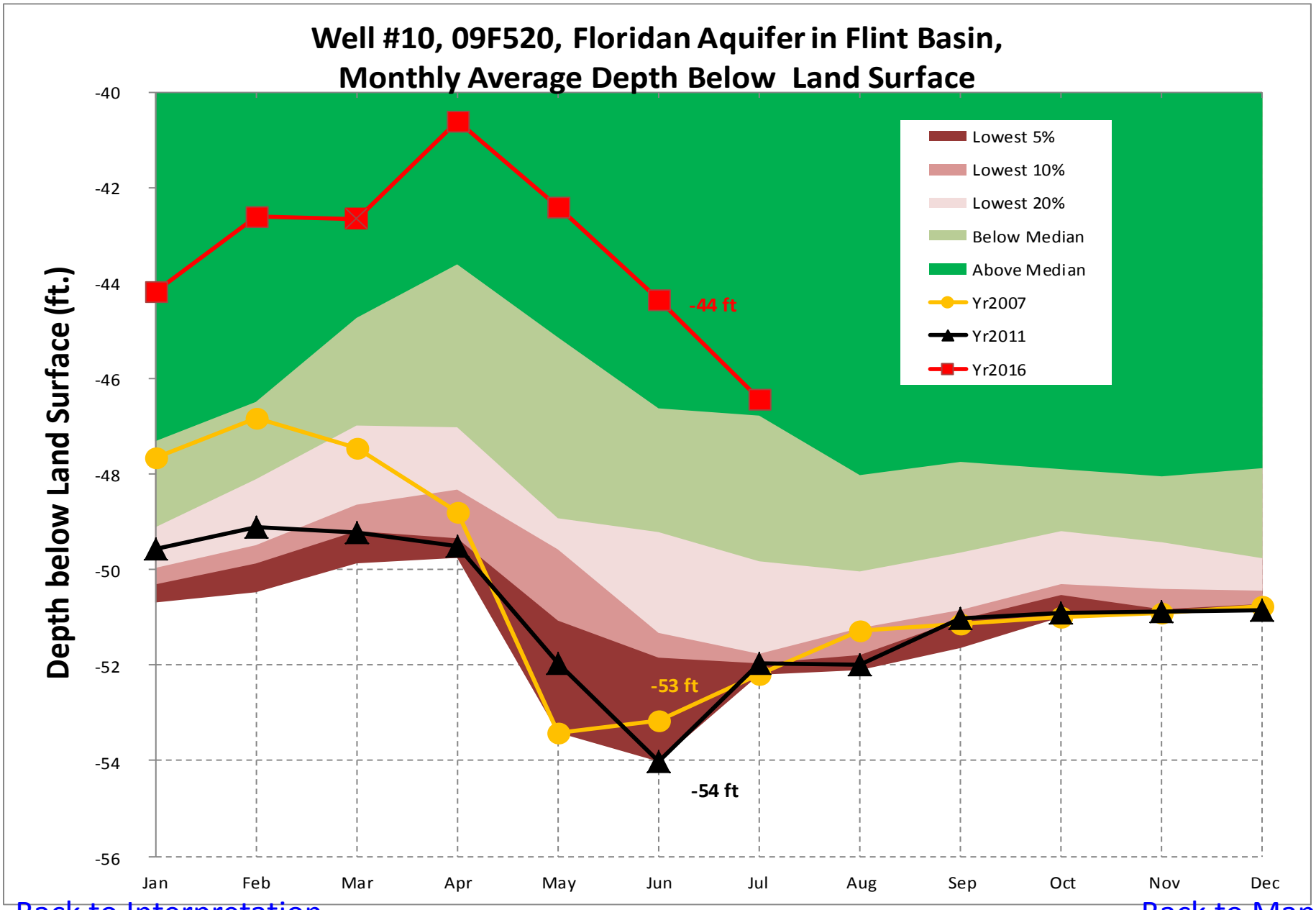

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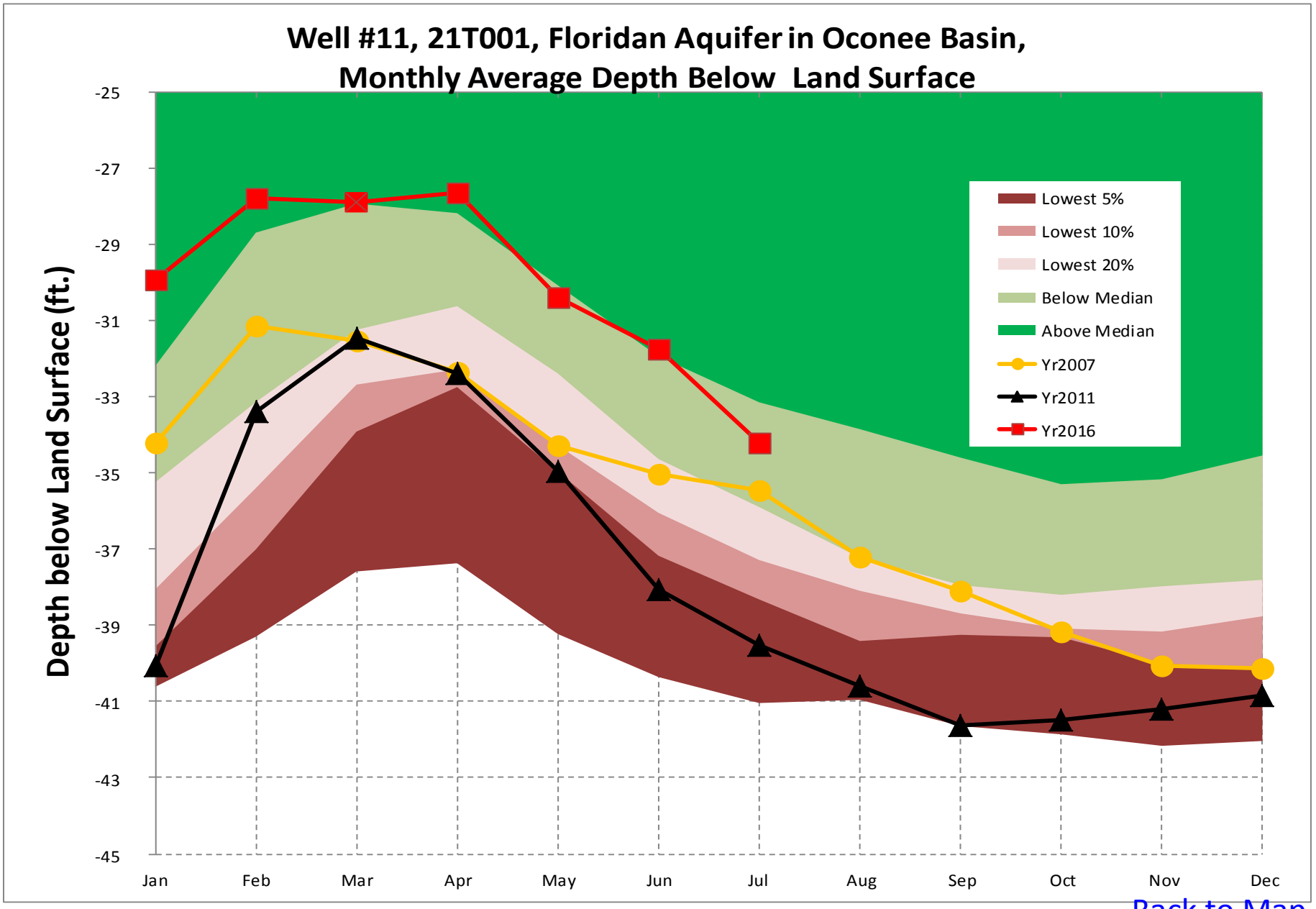
Well #11, 21T001, Floridan Aquifer in Oconee Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-25
-27
-29
-31
-33
-35
-37
-39
-41
-43
-45
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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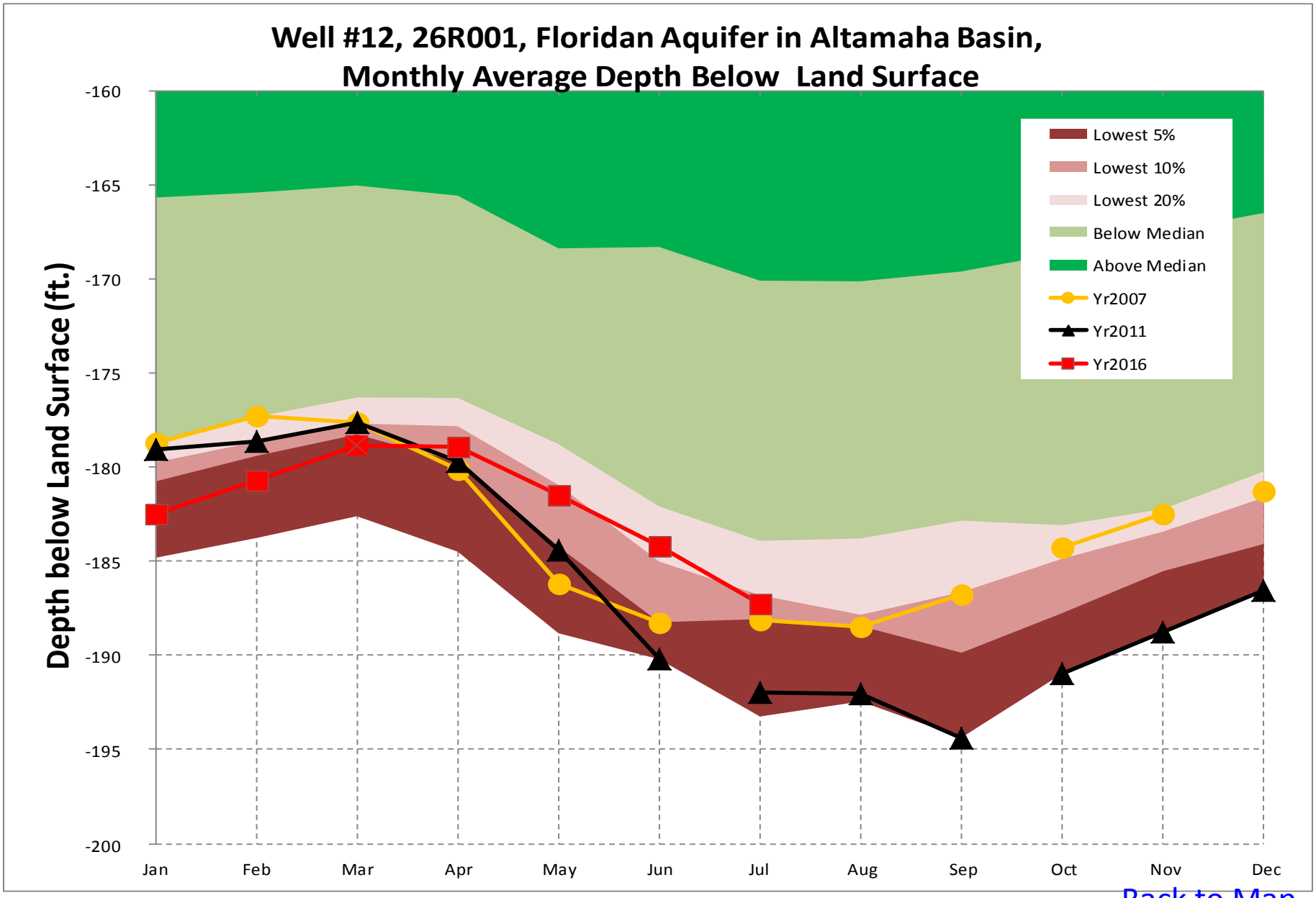
Well #12, 26R001, Floridan Aquifer in Altamaha Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-160
-165
-170
-175
-180
-185
-190
-195
-200
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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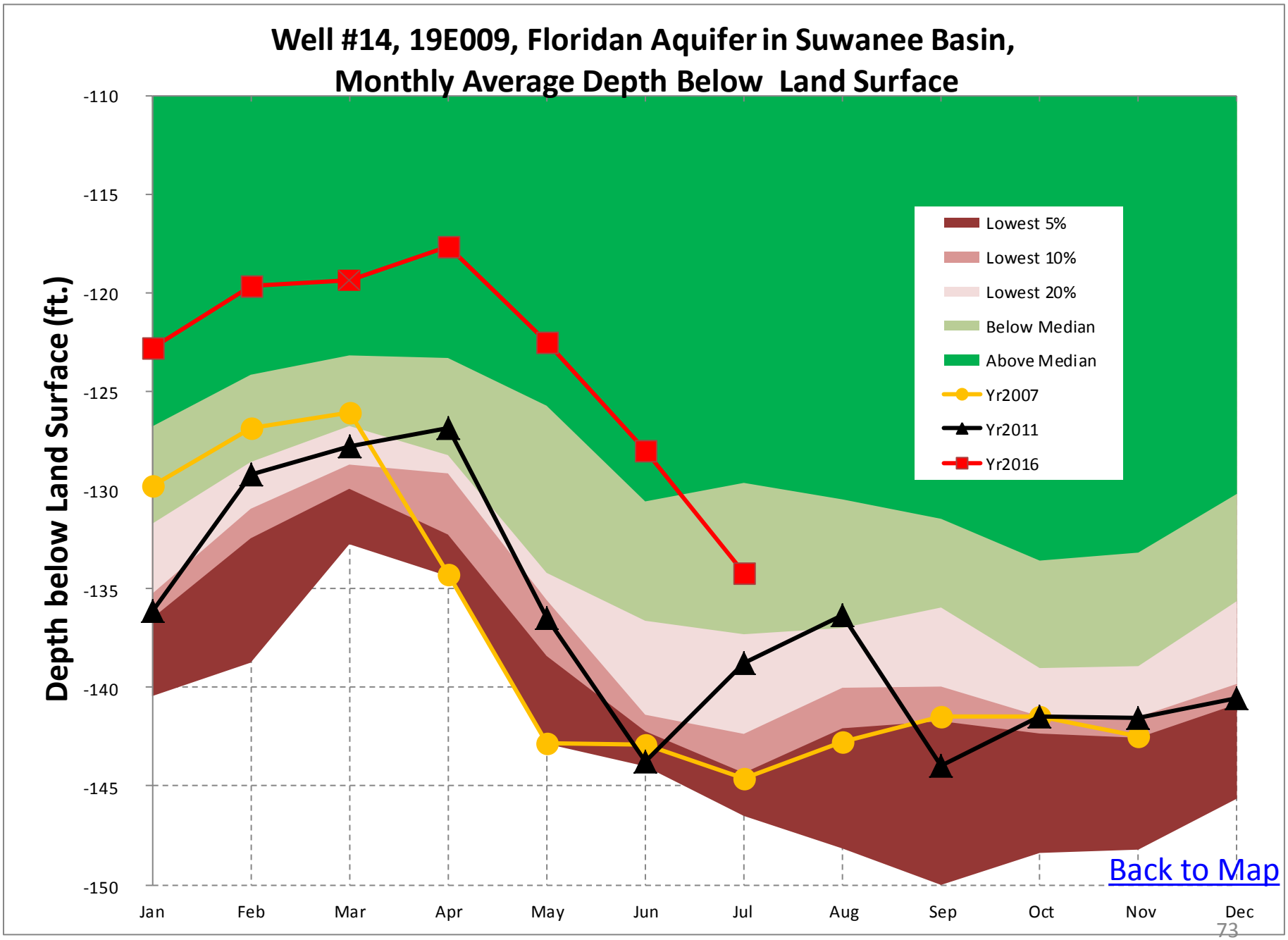
Well #14, 19E009, Floridan Aquifer in Suwanee Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-110
-115
-120
-125
-130
-135
-140
-145
-150
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016
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Reservoir 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

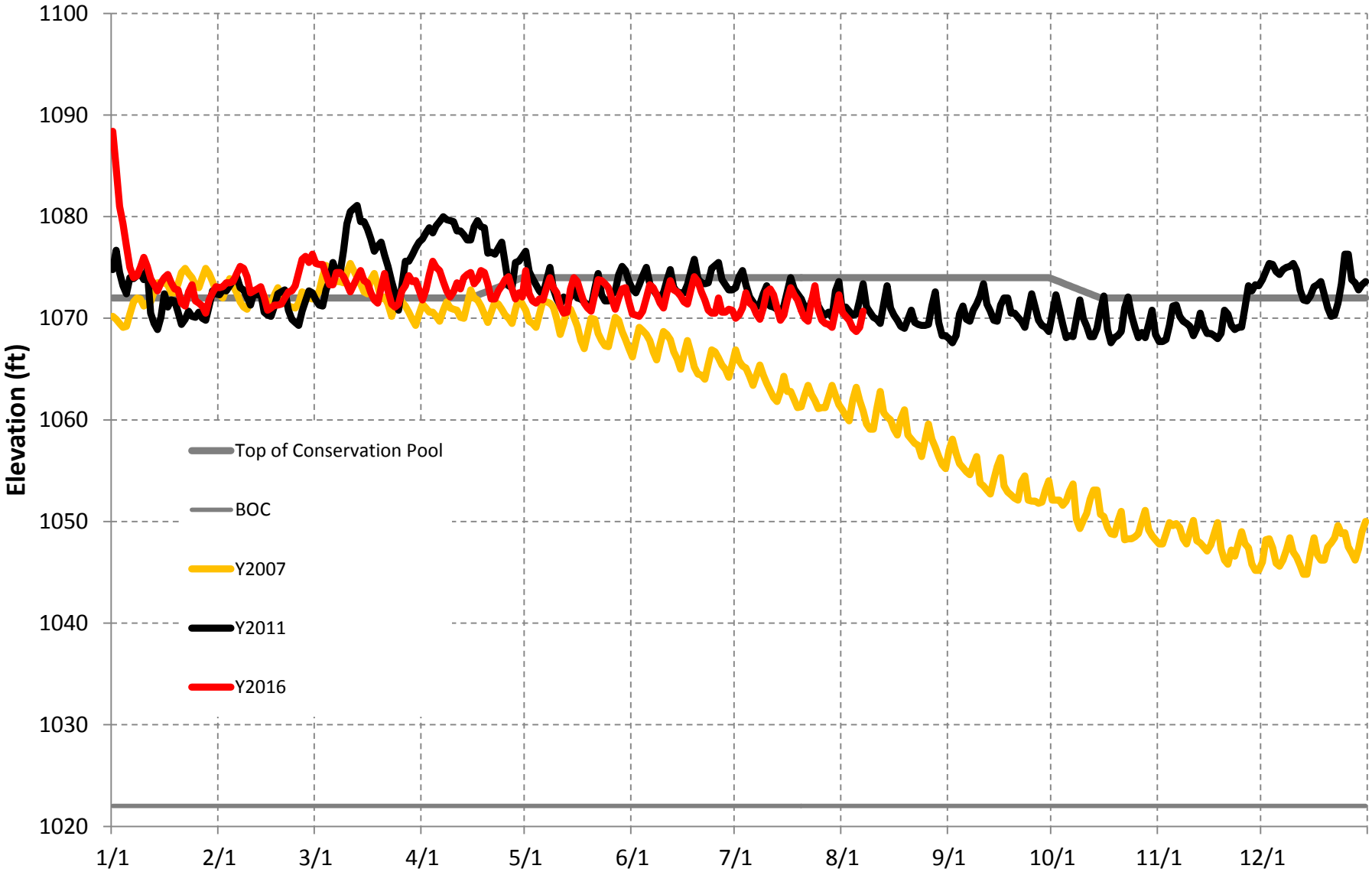
Savannah Basin
6. Hartwell
7. Thurmond

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 1, 2015 through July 31, 2016.
- 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 2016 reservoir elevations into perspective, elevations for 2007 and 2011 are also shown.

CARTERS ELEVATION



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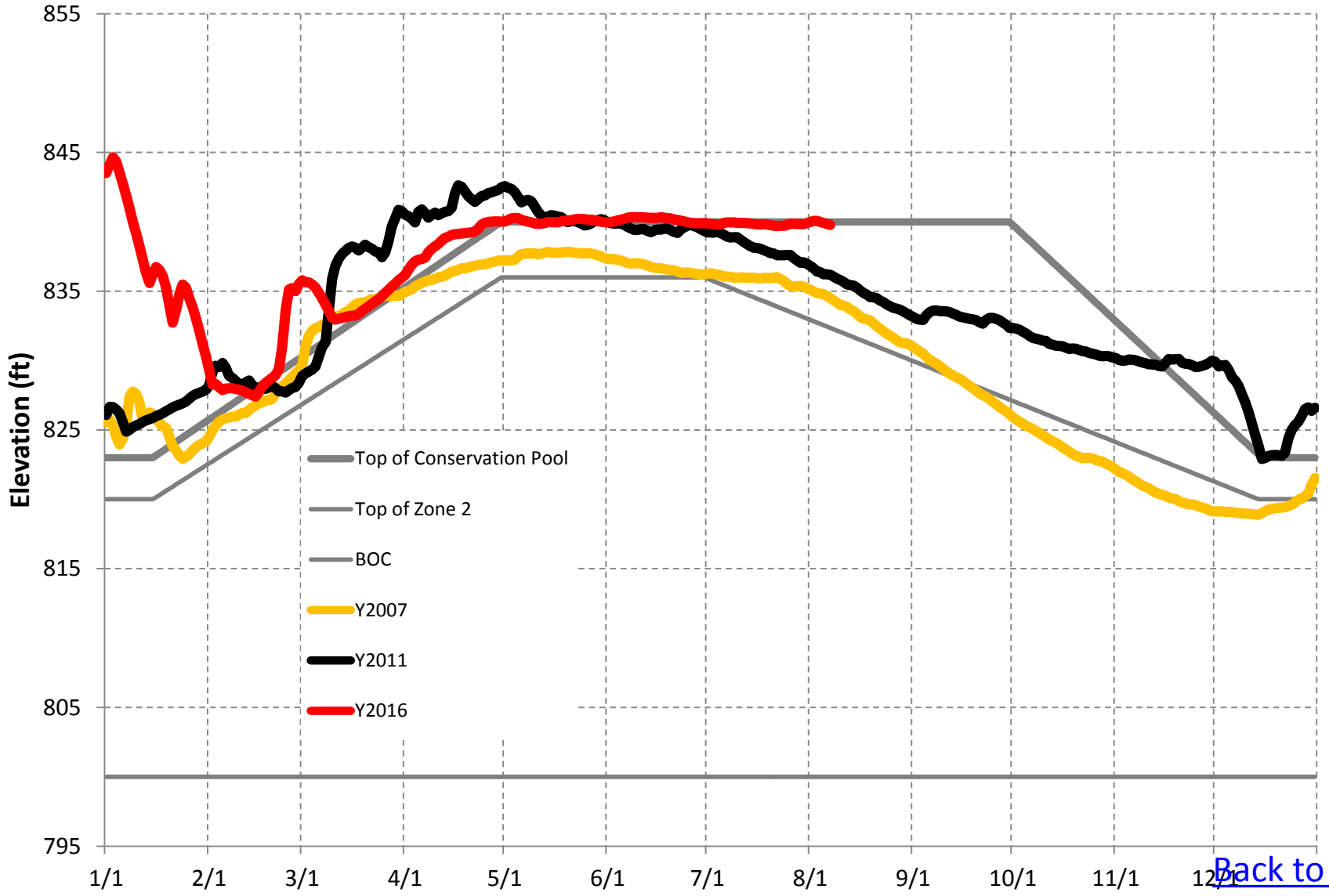
ALLATOONA ELEVATION



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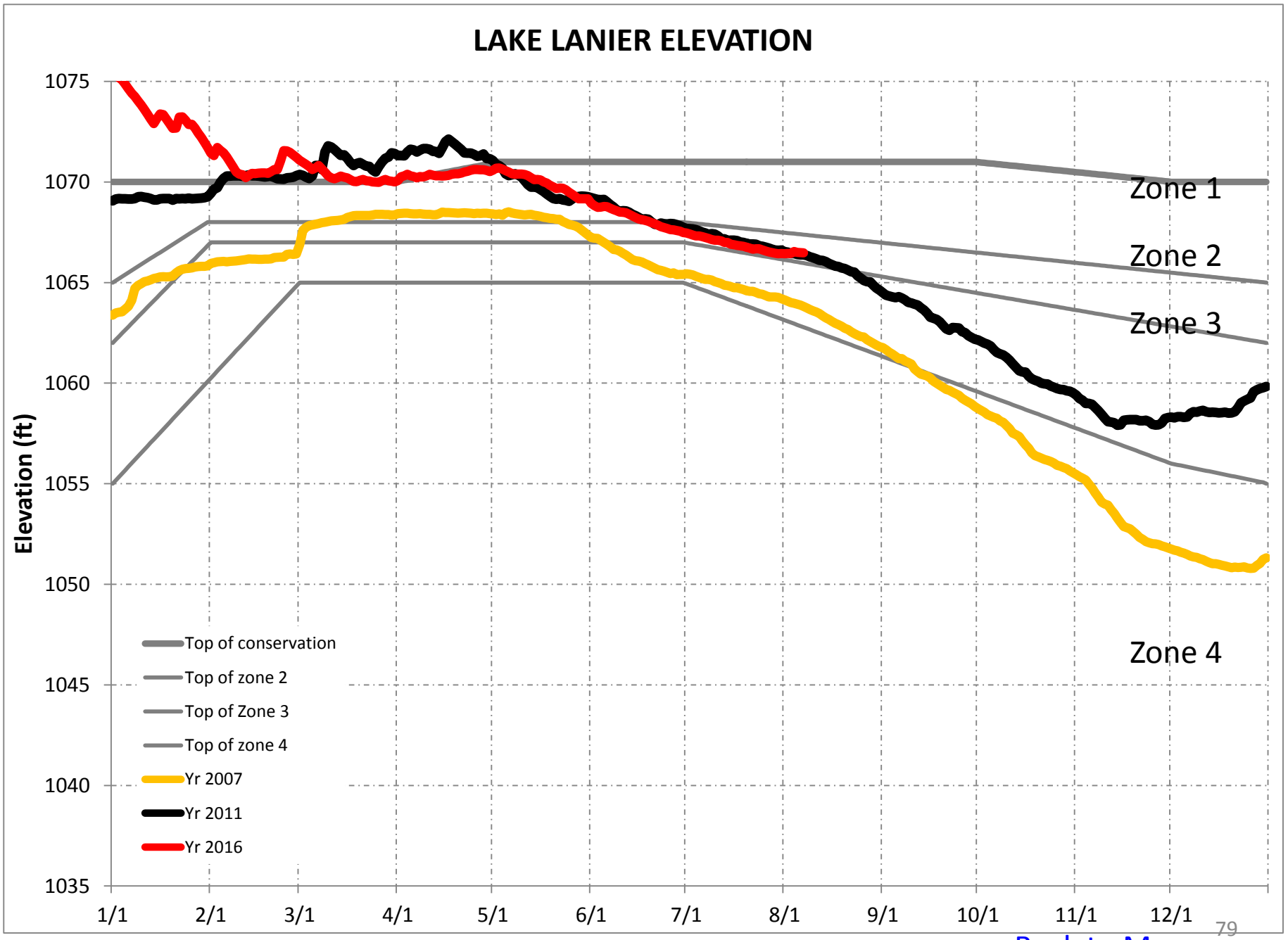
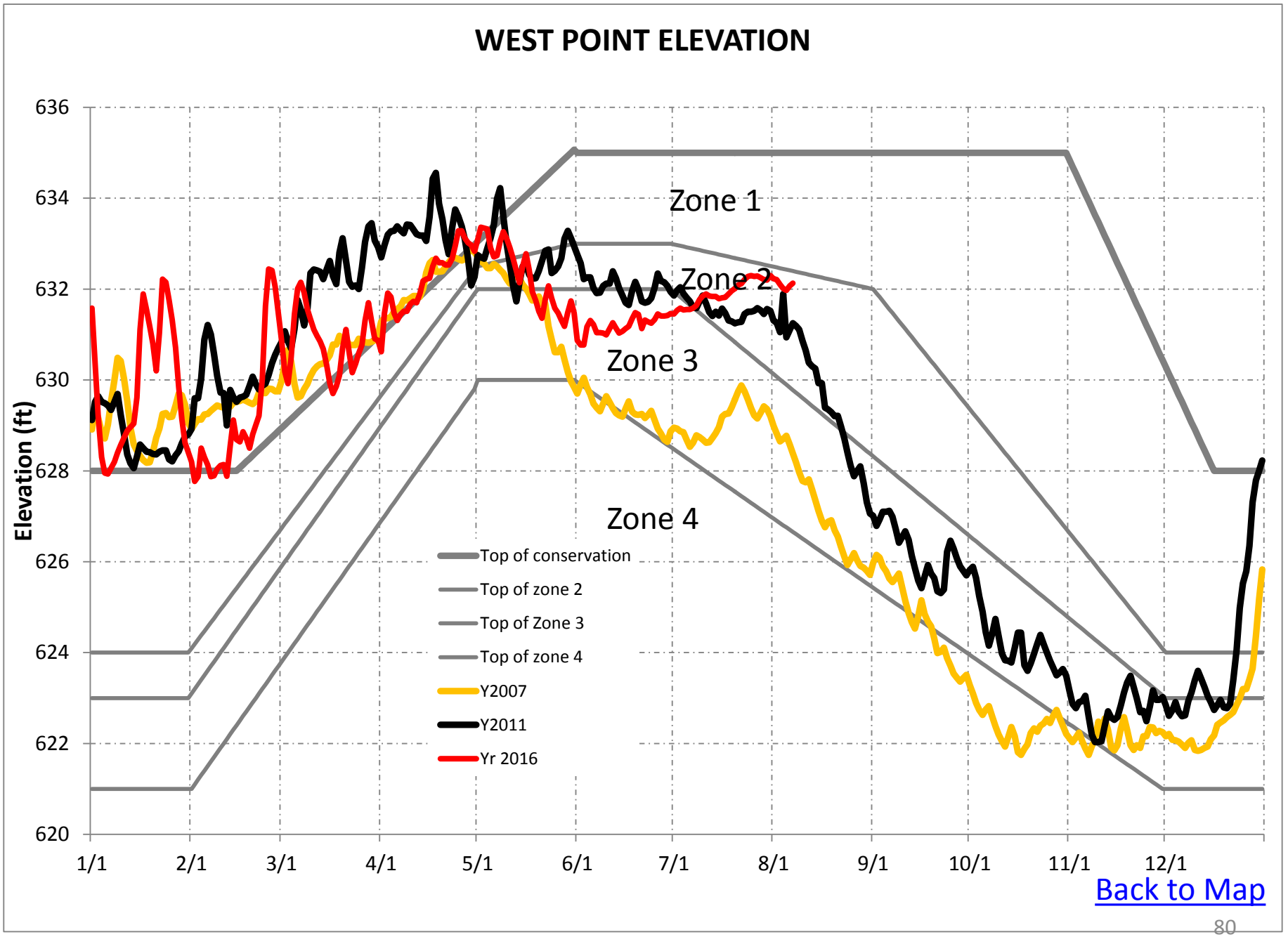
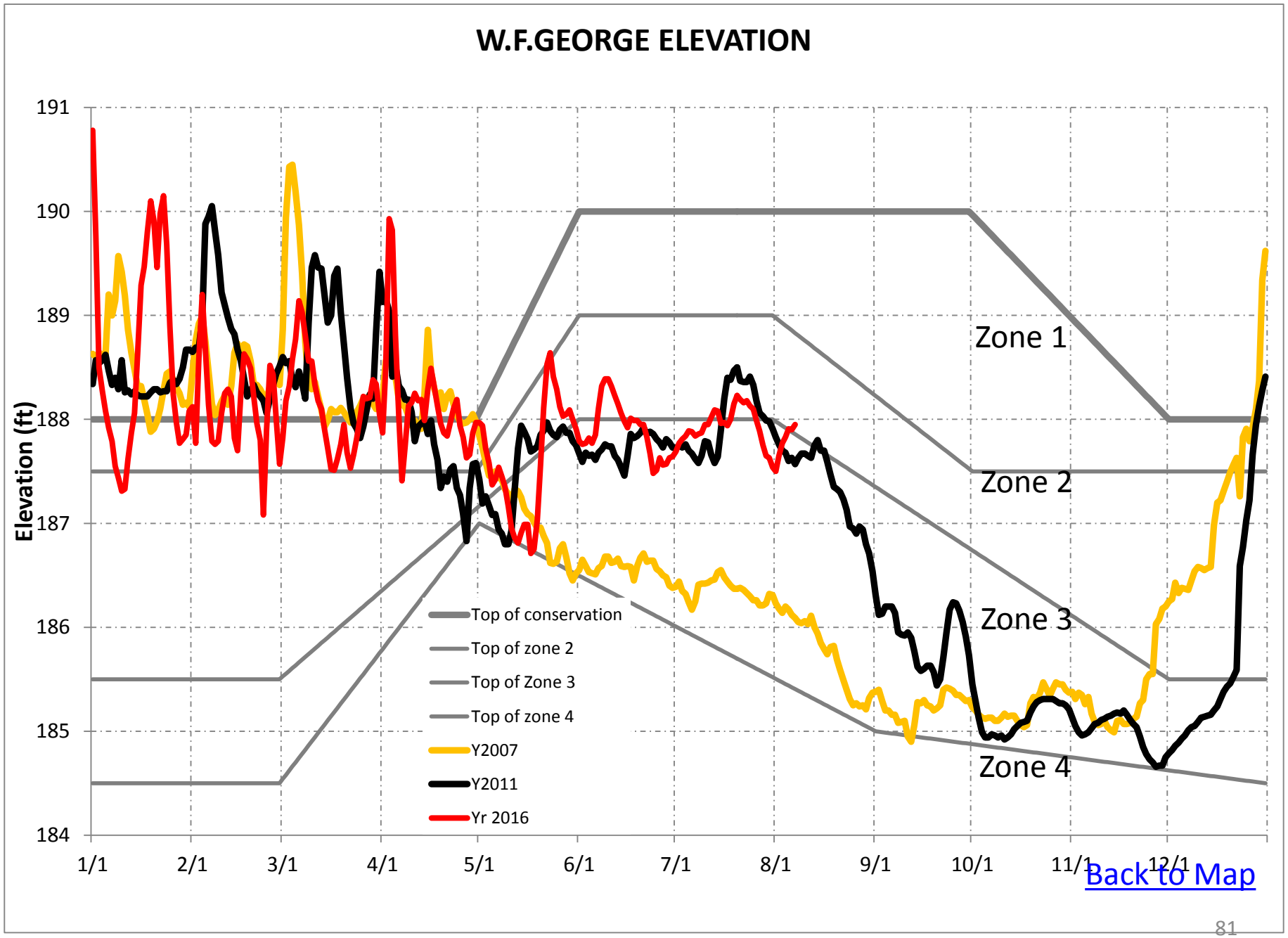

LAKE LANIER ELEVATION
Elevation (ft)
1075
1070
1065
1060
1055
1050
1045
1040
1035
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Zone 1
Zone 2
Zone 3
Zone 4
Top of conservation
Top of zone 2
Top of Zone 3
Top of zone 4
Yr 2007
Yr 2011
Yr 2016

Back to Map


WEST POINT ELEVATION
Elevation (ft)
636
634
632
630
628
626
624
622
620
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 2016

Back to Map


W.F.GEORGE ELEVATION
Elevation (ft)
191
190
189
188
187
186
185
184
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 2016

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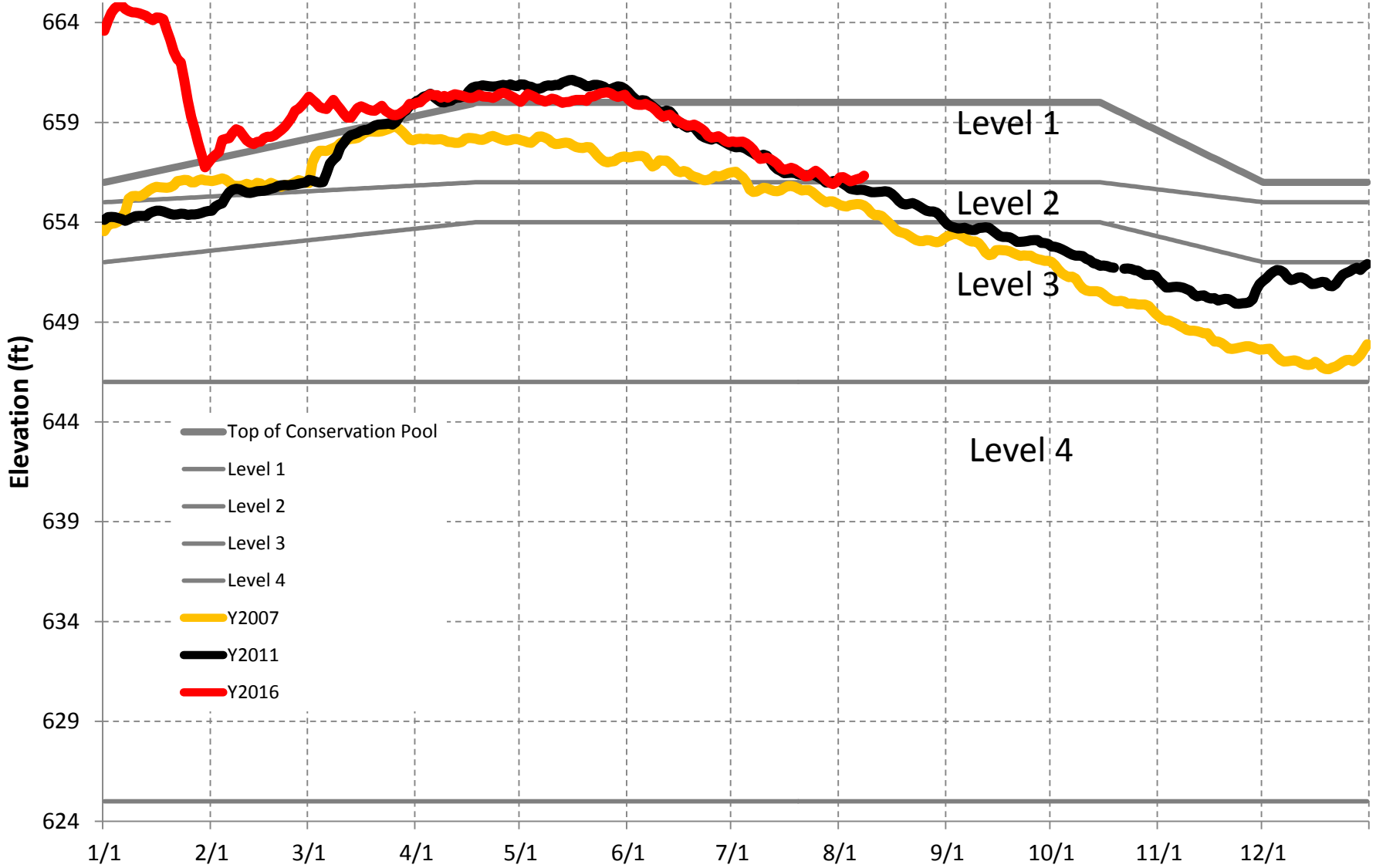
Lake HARTWELL ELEVATION



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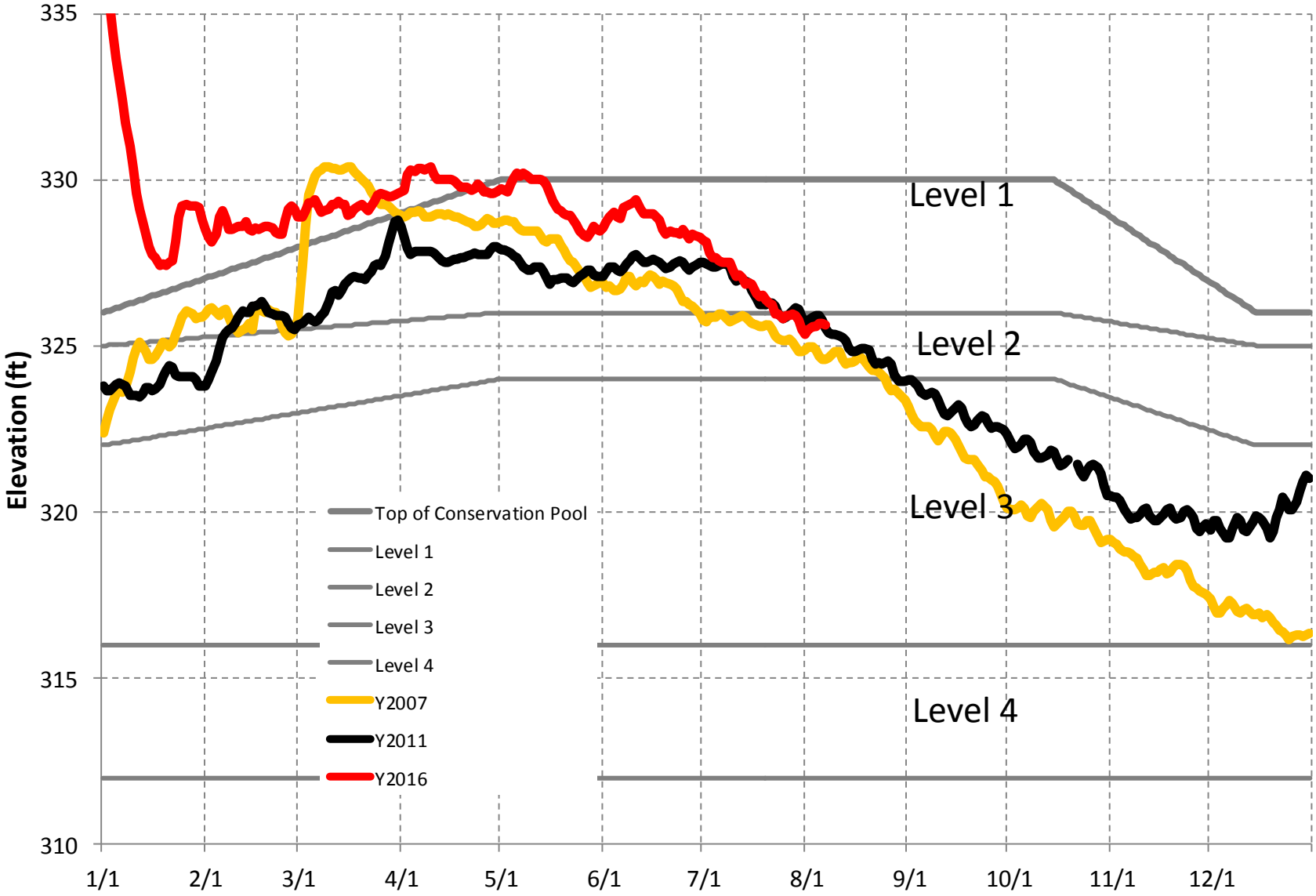
LAKE CLARK HILL (THURMOND) ELEVATION



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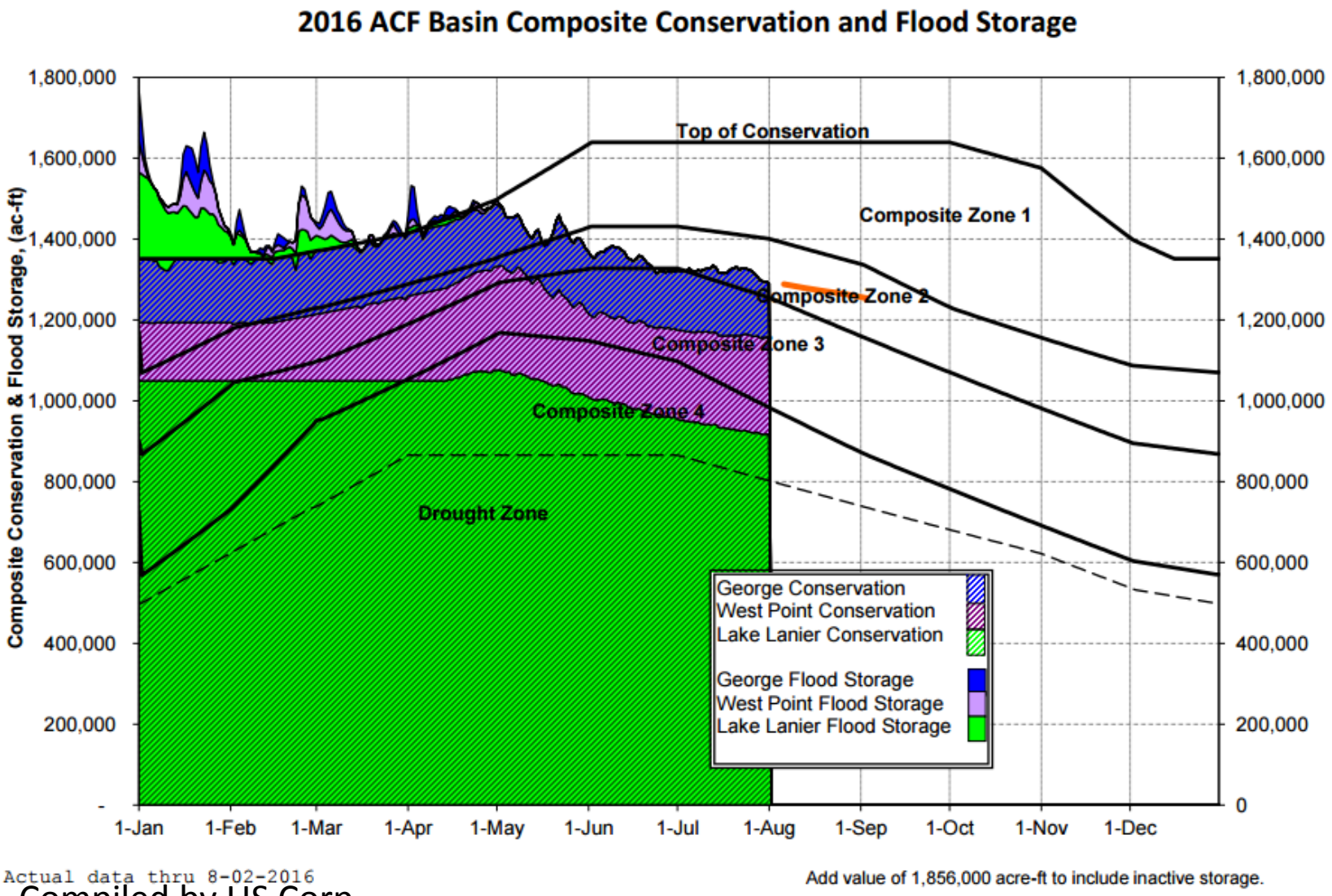
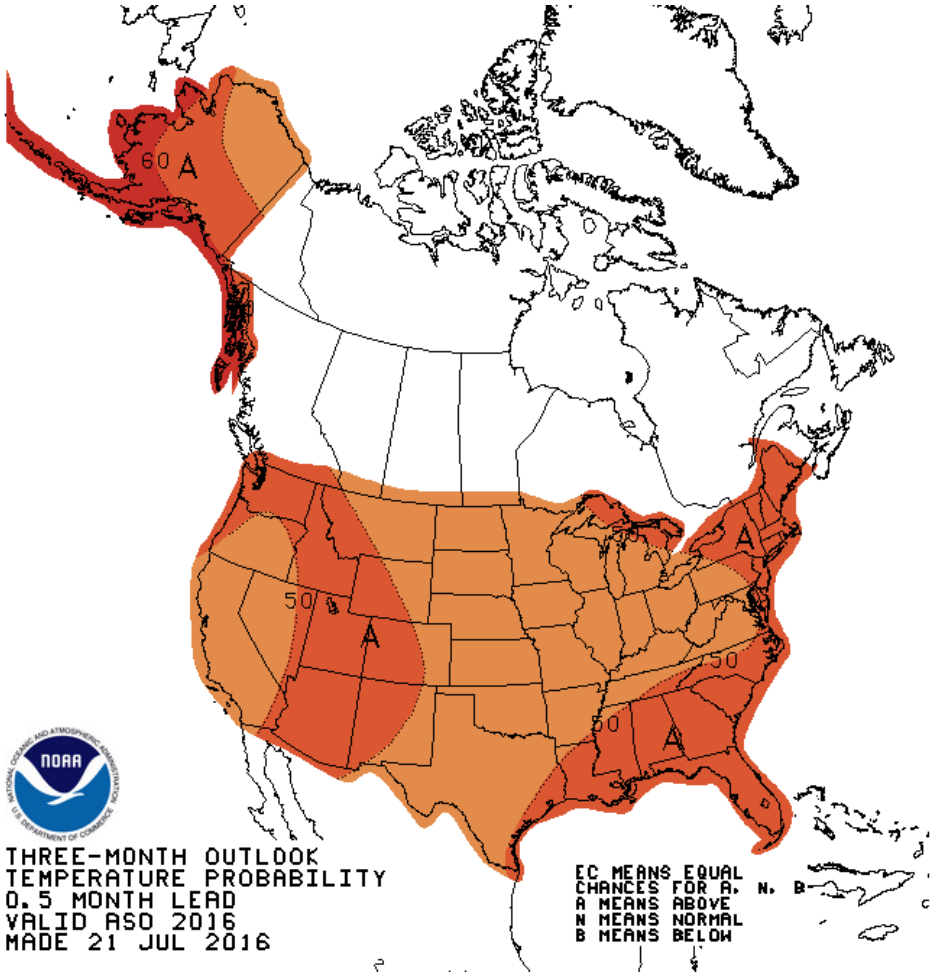


Compiled by US Corp.

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

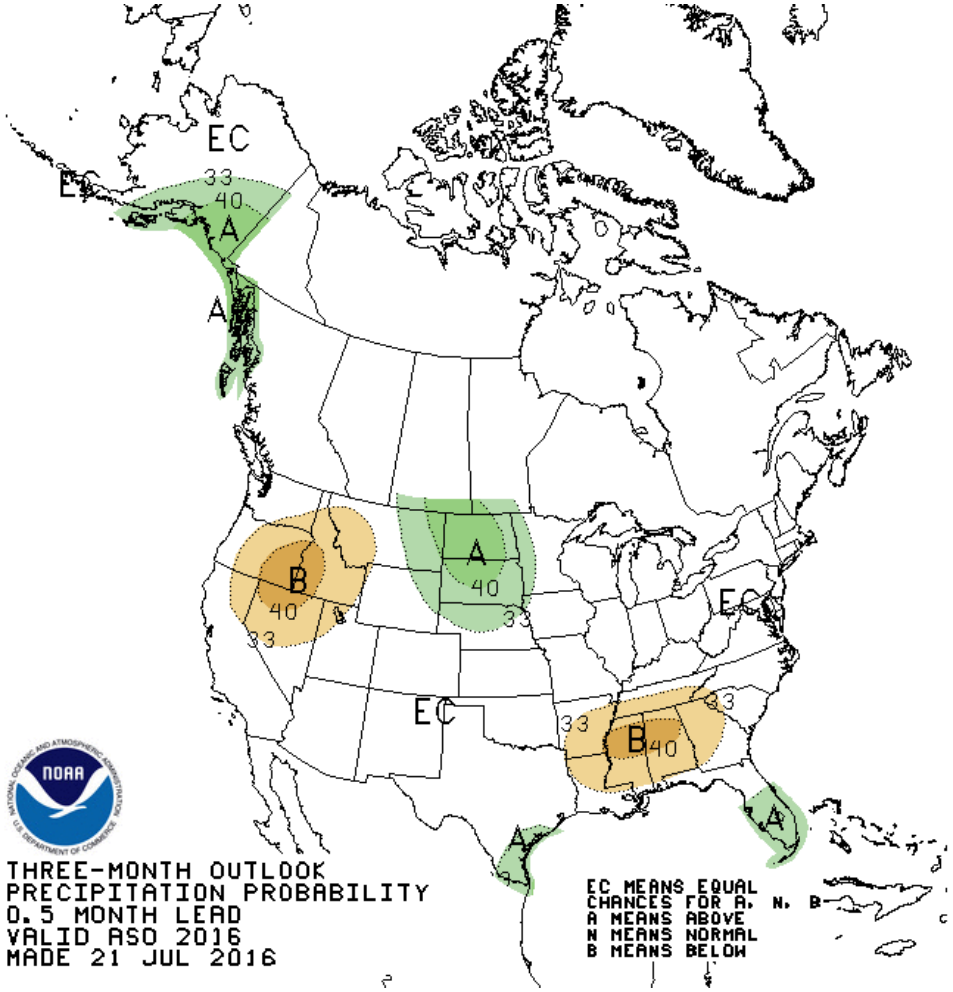
Data Source:
http://www.cpc.ncep.noaa.gov/

Temperature Outlook



The Climate Prediction Center 3-month temperature probability outlook for August-October 2016 calls for a 50% chance of above normal temperatures in the whole state.

Precipitation Outlook

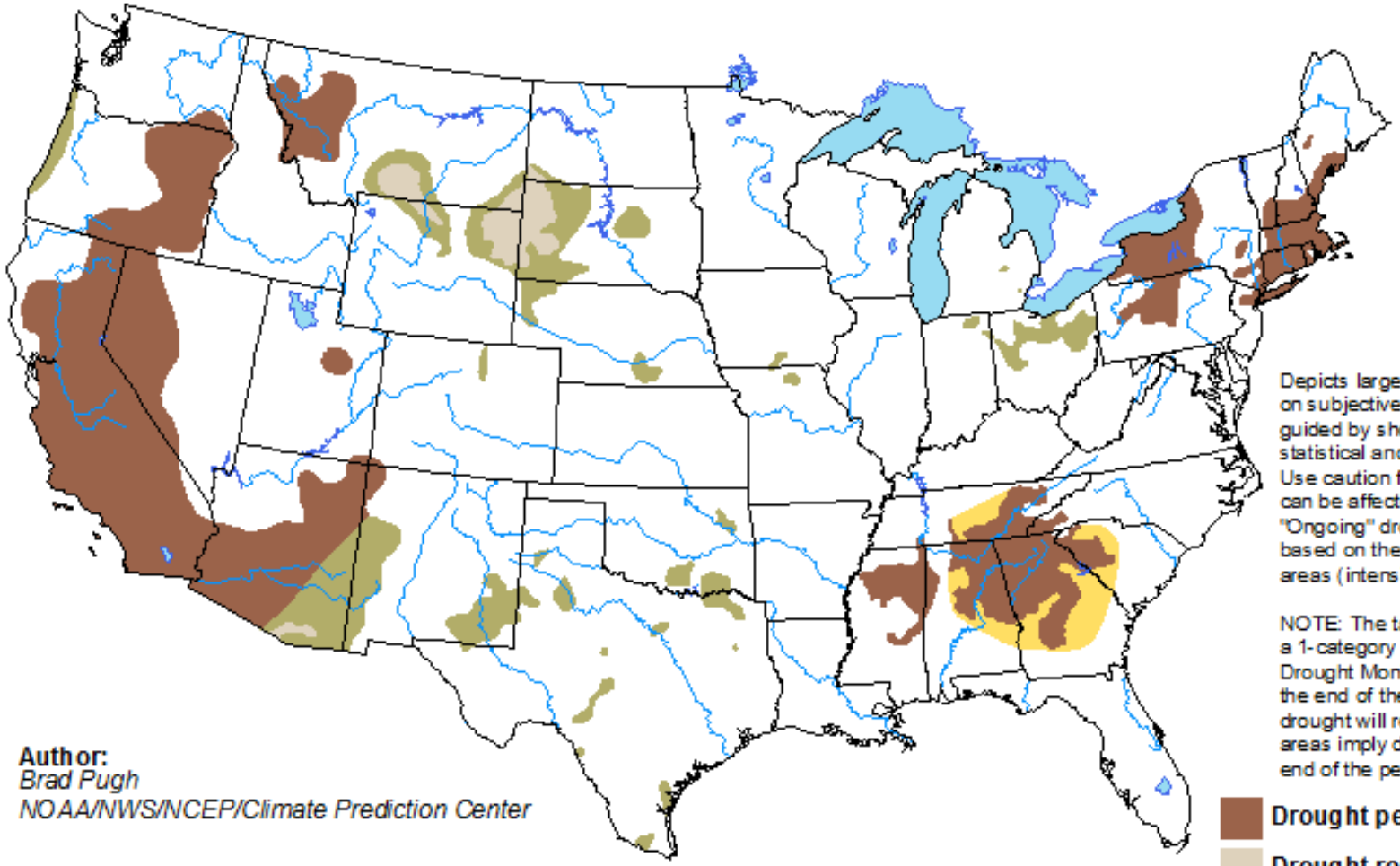


For August-October 2016, the outlook calls for an equal chance of above or below normal precipitation in the southeast region and 33 percent chance below than normal for remaining region of state.

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for August 18 - November 30, 2016
Released August 18, 2016

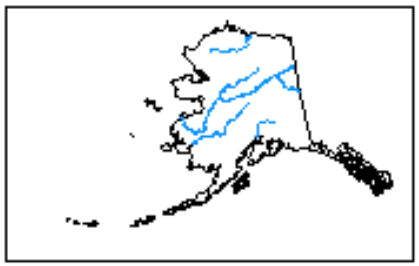


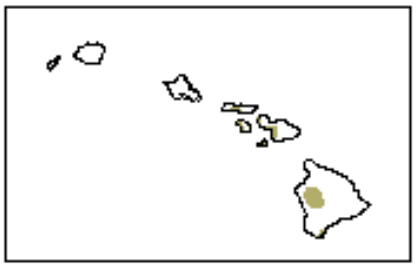
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

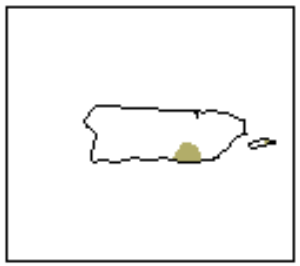
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center

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







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