Drought Indicators Report

Georgia Environmental Protection Division

December 2016

Background

Pursuant to the Rules for Drought Management, Section 391-3-30-.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;
- 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 13, 2016.

Drought Indicator Analysis Summary (slide 1 of 2)

- **U.S. Drought Monitor** - Exceptional drought (D4, the most intense level) is in all or portions of 69 counties in a ring around the northern portion of the state. Extreme drought is in all or parts of 72 counties in the Metro Atlanta area and north of a line from Quitman to Lincoln County. Severe drought is indicated in a small portion of the southwest Atlanta area, a narrow band about one county wide and south of the extreme drought line in addition to a small portion of south central Georgia. This week marks the 29th week of continuous severe (or more intense) drought in northwest Georgia, the 27th week for the Atlanta metro area, the 26th week in parts of the northeast, the 20th week in central Georgia, and the 4th week in extreme south central Georgia.
- **Precipitation** - The 3 month records show some relief from the early December rainfall in extreme southwest and coastal Georgia, and the worst deficits of 25% to 50% of normal precipitation are indicated at and generally north of the fall line and in parts of south central Georgia. The 6 month records also show this portion of the state with the worst deficits, less than 50% of normal precipitation, as well as into much of central Georgia. The 12 month records are starting to show near normal rainfall in southwest, west-central, southeast, and south of the metro Atlanta area, while the greatest deficits still exist in extreme north central and northeast Georgia and parts of central, western, and east-central Georgia in the long-term.
- **Soil Moisture** – Soil moisture conditions north of the fall line show abnormal to extreme dryness, while much of south Georgia shows normal to severe wetness. Some extreme dryness still exists in northeast, northwest, and east central Georgia due to the longevity of the drought in those areas.

Drought Indicator Analysis Summary (slide 2 of 2)

- **Streamflow** - Persistently low flows continue to drop, with a majority of observation sites at or below 2007 and/or 2011 levels. Twenty four gages show flows at or lower than the 5th percentile. Note that this report reflects data through the end of November and does not capture flows and levels due to early December rainfall.
- **Groundwater** – All 14 of the monitoring wells EPD uses to track drought conditions are below median levels. seven are above the 20th percentile and five are below the 5th percentile of the historical record. Note that this report reflects data through the end of November and does not capture flows and levels due to early December rainfall.
- **Reservoir Levels** –In the ACT, Allatoona is at winter guide curve and Carters Lake remains in zone 2. Allatoona is forecasted to continue declining, while Carters' level is forecasted to stabilize. ACF inflows have rebounded such that the Corps is not currently relying on storage to meet the 5000cfs low flow requirement at Woodruff Dam. In the ACF, Lanier is in zone 3, WestPoint is at winter guide curve, and George is in zone 1. ACF composite basin storage is in zone 2 and is forecasted to decline slowly. In the Savannah Basin, both Hartwell and Thurmond are in level 3 and remain in Corps drought level 2 operations.
- **Short Term Climate Prediction** -- Drought conditions in the entire Southeastern United States are predicted to persist or intensify.
- **Water Supplies** – The full range of systems, including those that rely on large reservoirs and rivers are closely watching their drought contingency plan triggers as well as the ongoing response of water sources to recent rains. A total of seven drought variances have been granted to date.

US Drought Monitor

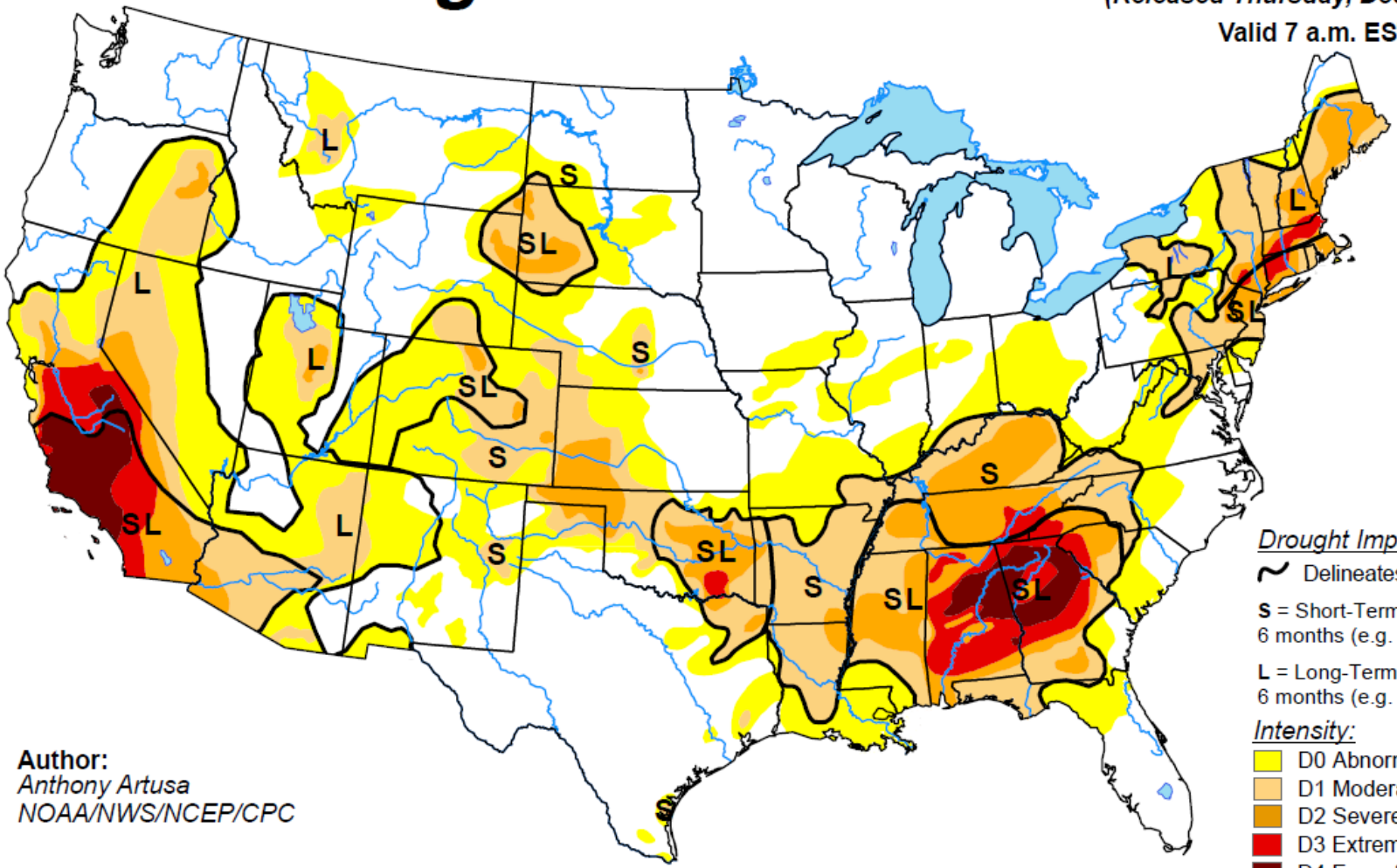
Data Source:
http://droughtmonitor.unl.edu/

U.S. Drought Monitor

December 13, 2016

(Released Thursday, Dec. 15, 2016)

Valid 7 a.m. EST



Author:
Anthony Artusa
NOAA/NWS/NCEP/CPC

Drought Impact Types:

~ Delineates dominant impacts

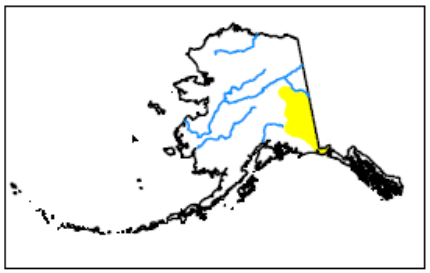
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

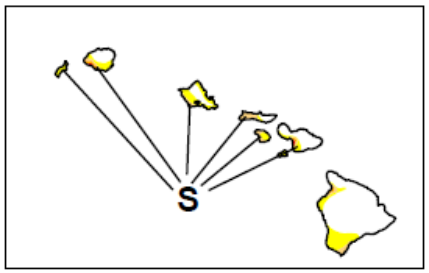
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

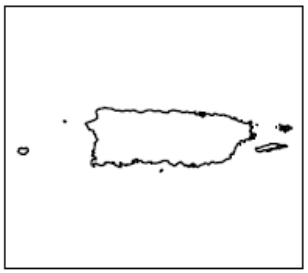
Intensity:

- 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.



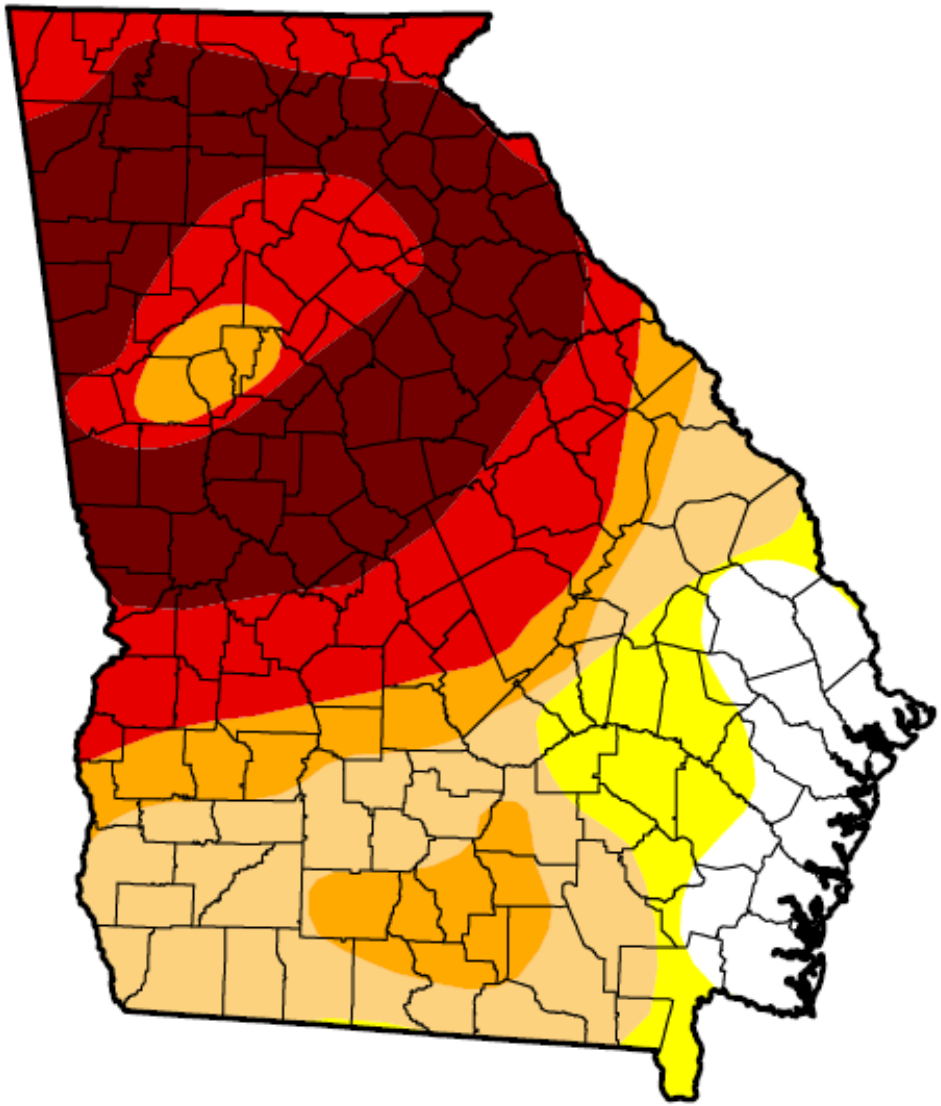




USDA | National Drought Mitigation Center | U.S. Department of Commerce | NOAA

http://droughtmonitor.unl.edu/

U.S. Drought Monitor
Georgia



December 13, 2016
(Released Thursday, Dec. 15, 2016)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	9.09	90.91	83.09	63.26	50.18	27.25
Last Week *12/6/2016*	0.00	100.00	89.31	72.00	50.18	27.25
3 Months Ago *9/13/2016*	39.36	60.64	41.08	29.49	7.46	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 *9/27/2016*	35.37	64.63	45.84	34.50	14.67	1.58
One Year Ago *12/15/2015*	85.33	14.67	0.00	0.00	0.00	0.00

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.

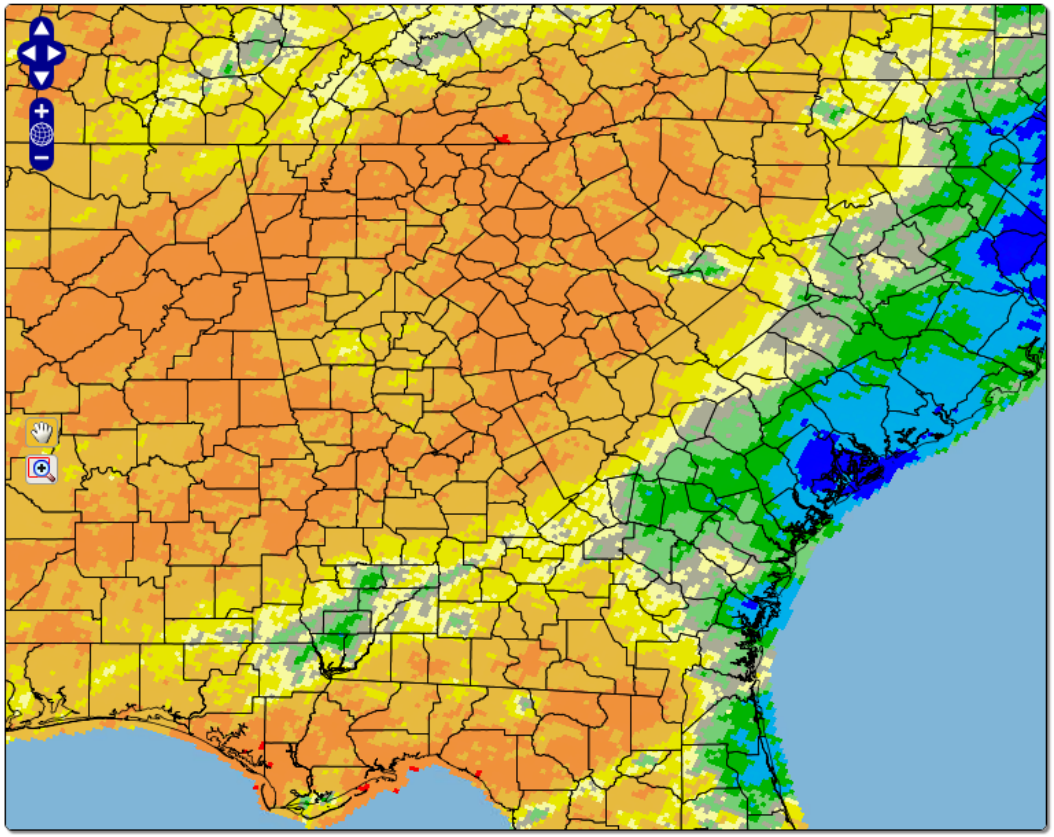
Author:
Anthony Artusa
NOAA/NWS/NCEP/CPC

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



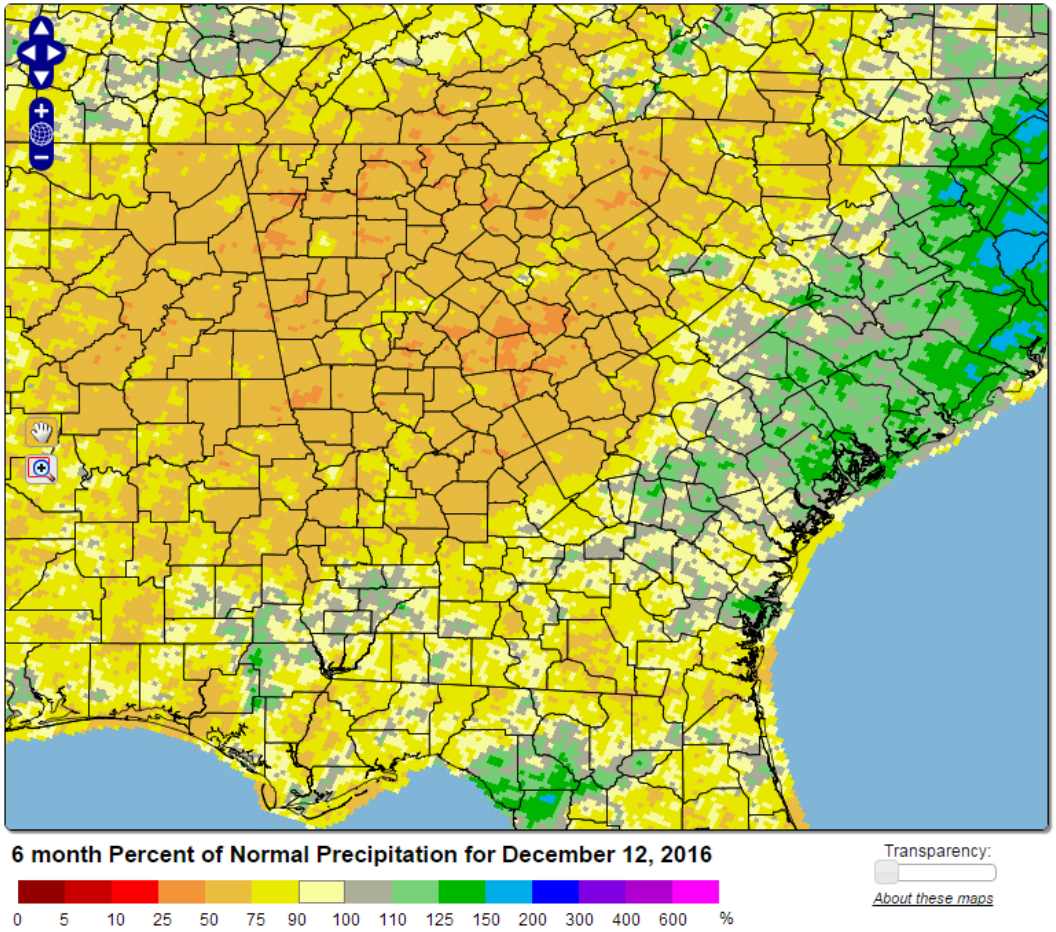
90 day Percent of Normal Precipitation for December 12, 2016

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

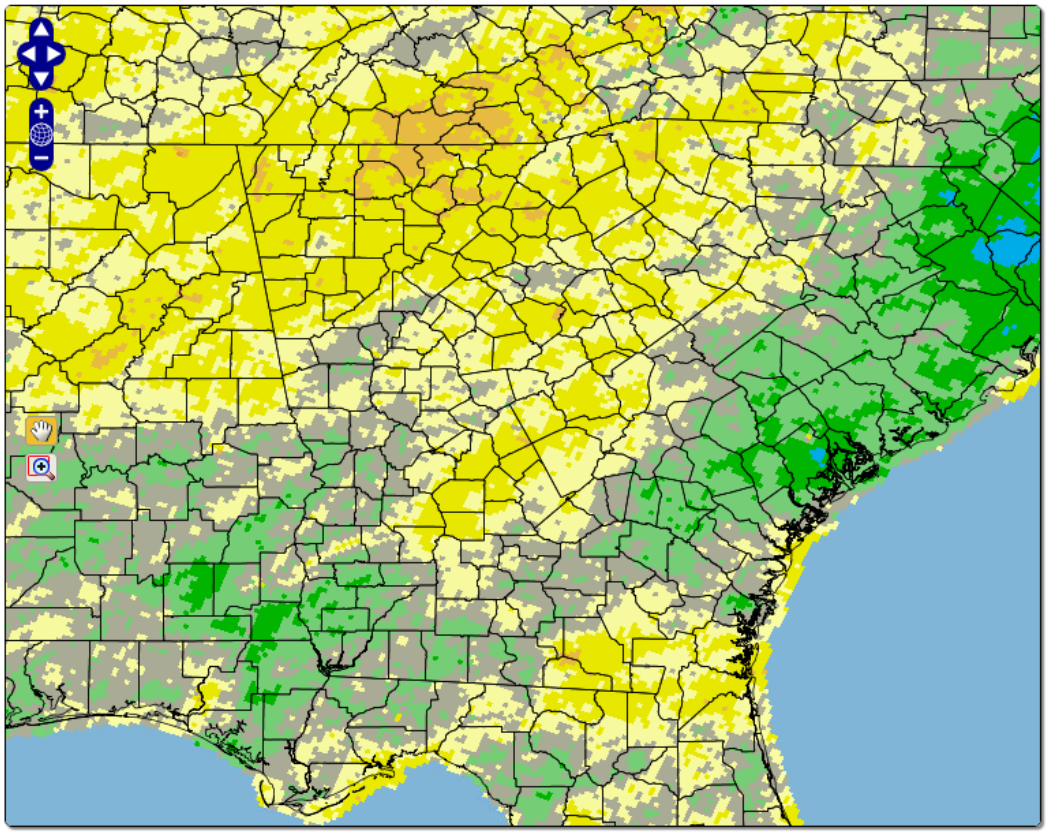
Transparency:

About these maps

6 Month Percent of Normal Precipitation

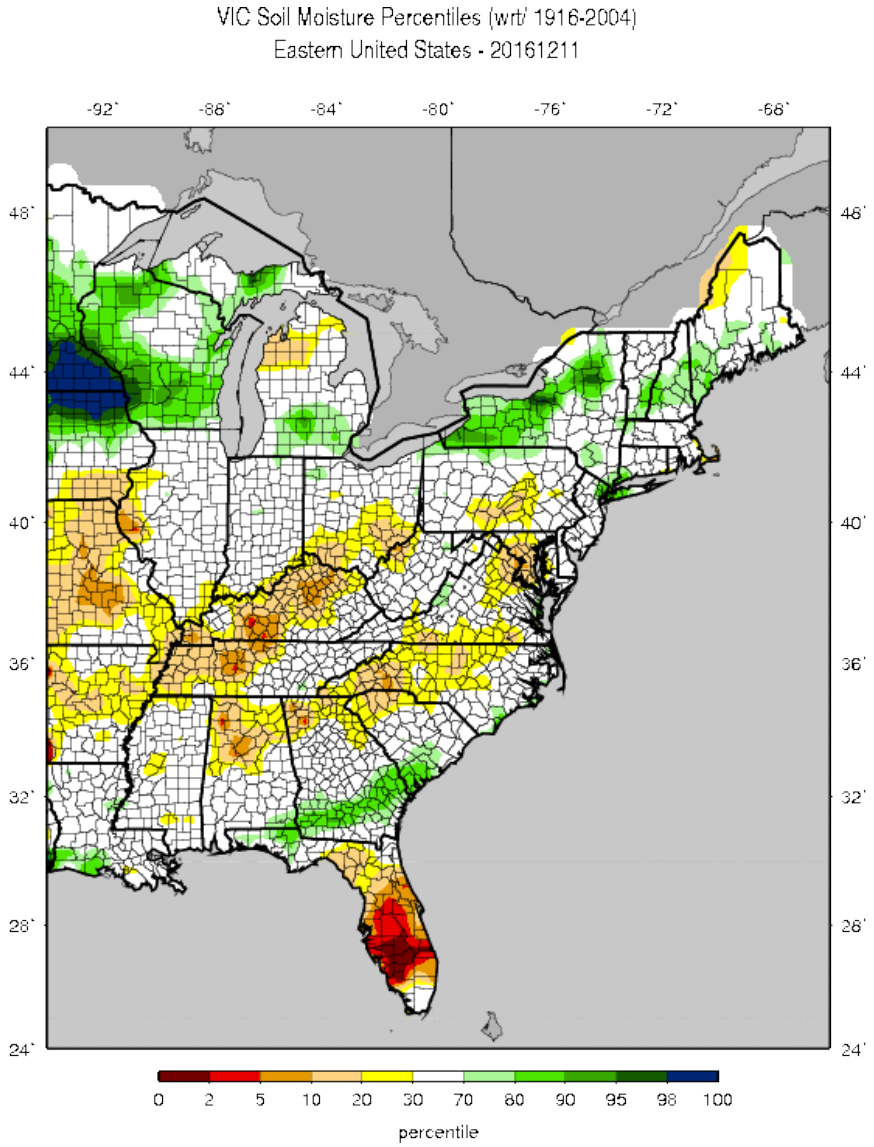


12 Month Percent of Normal Precipitation



Soil Moisture Conditions

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



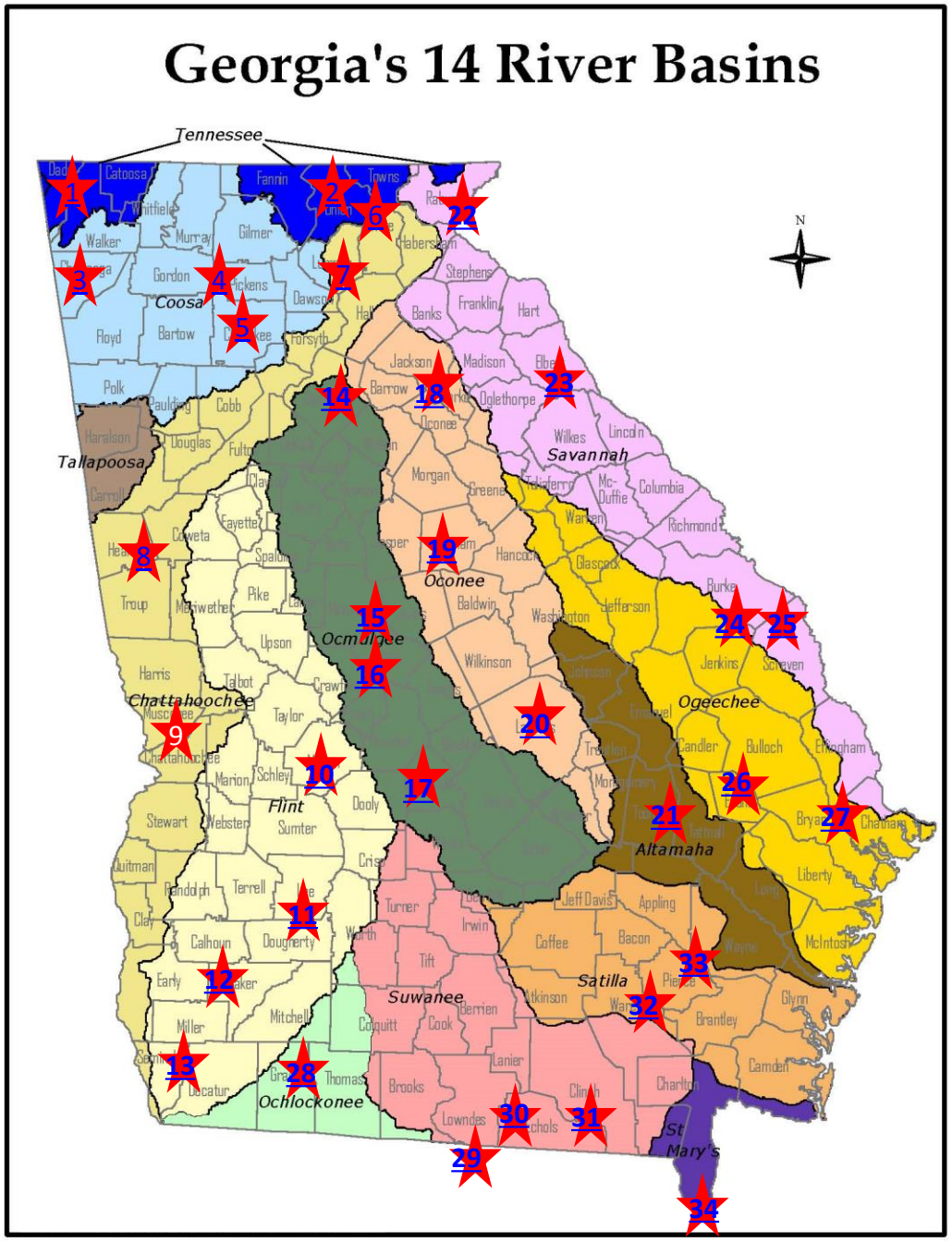
Current (daily updated) percentiles for soil moisture (SWE) with respect to the climatological period (1916-2004).

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, 2016 through November, 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**

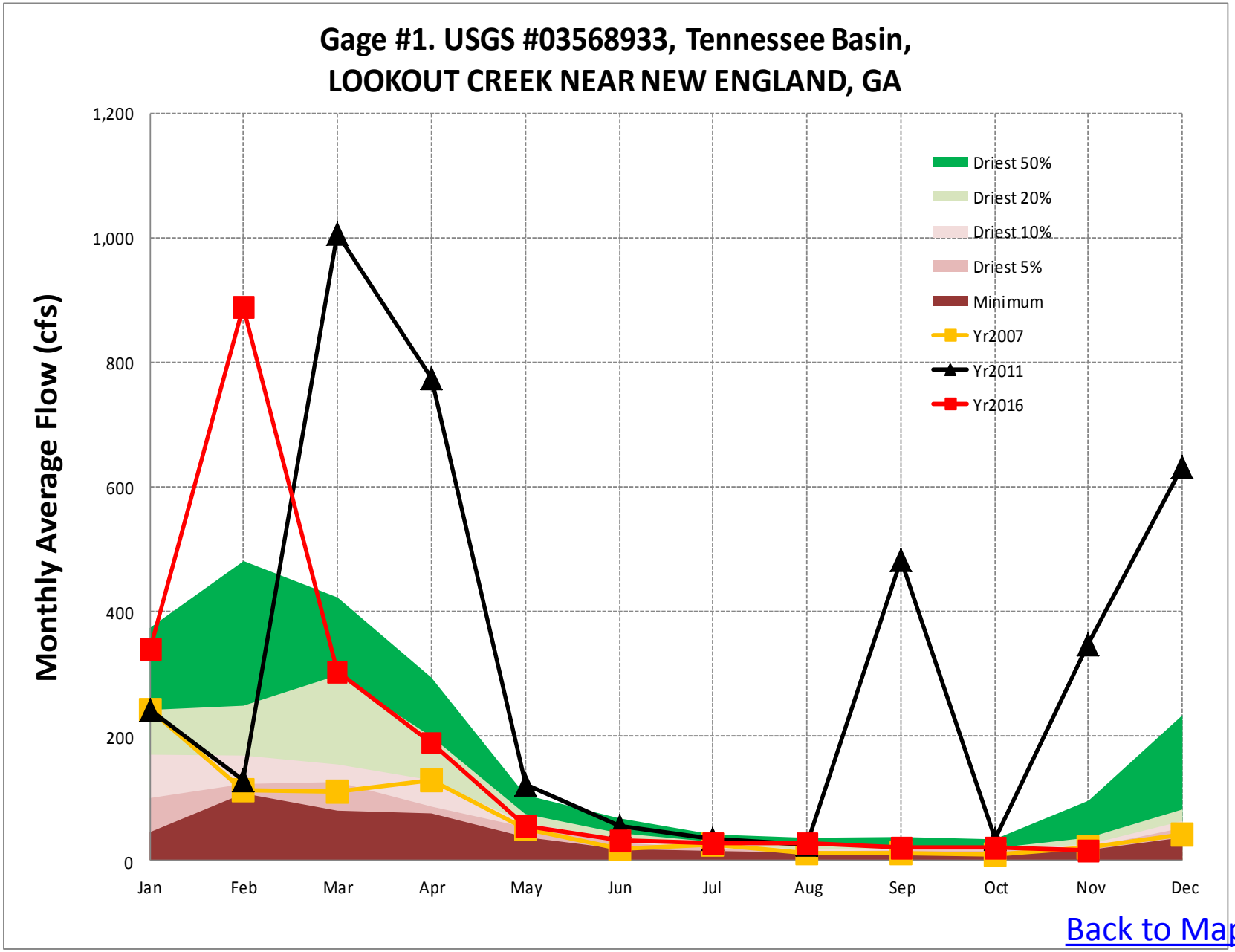
The streamflow graph for Gage #5, USGS Etowah River gage at Canton shows :

- Average stream flow for November 2016 was 175 cfs. The statistical composite of all historical data for this gage shows that average streamflow in November has historically been lower than November 2016 about 20% of the time; about 80% 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 for November has historically been lower than November 2011 only 10% of the time; 90% 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 for November has historically been lower than November 2007 only 5% of the time; 95% of the time in November it has been higher.

How to Read the Streamflow Graphs
Example #2: **Flint River at Albany**

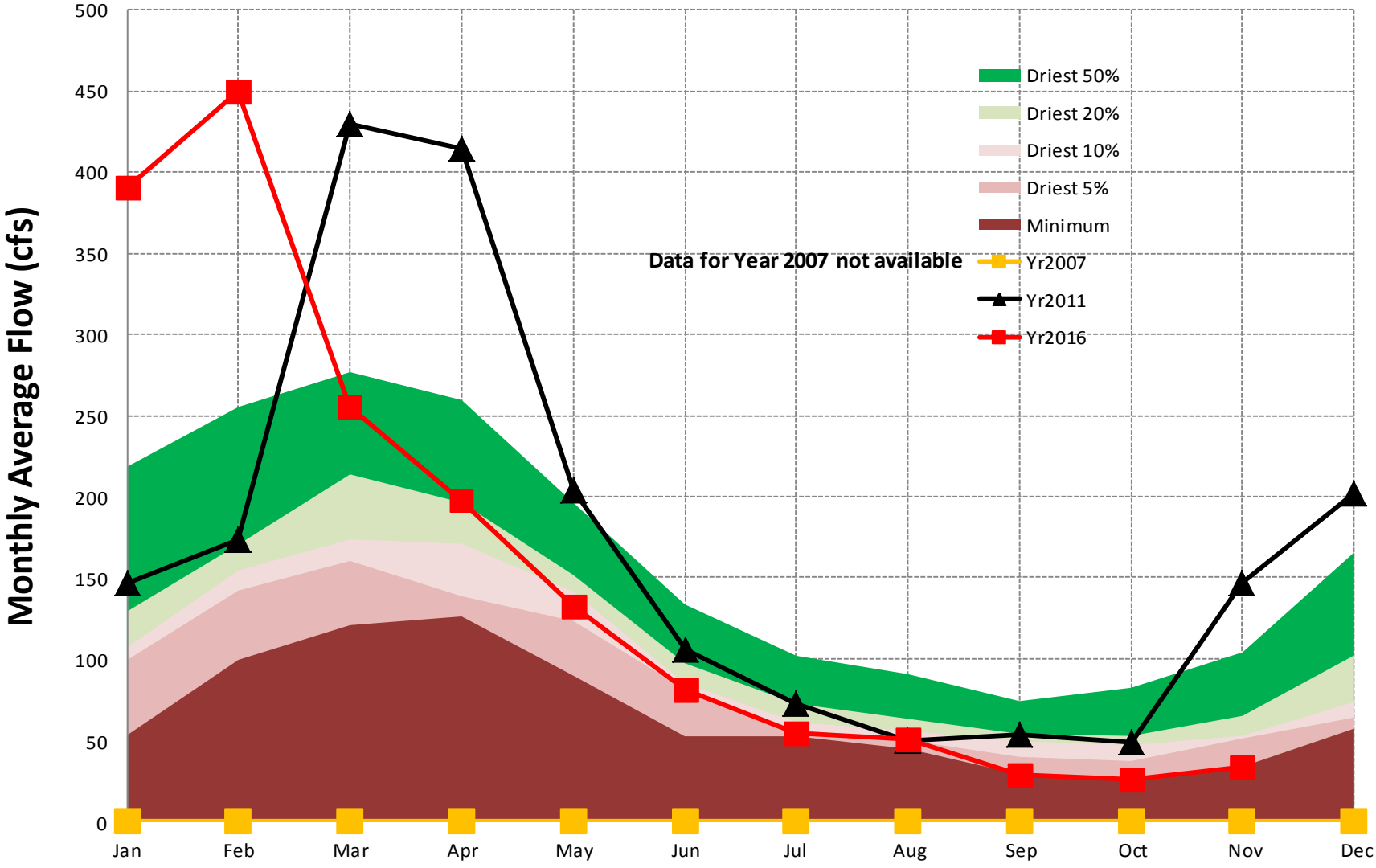
The streamflow graph for Gage #11, USGS Flint River gage at Albany shows:

- Average stream flow for November 2016 was 1330 cfs. The statistical composite of all historical data for this gage shows that average streamflow in November has historically been lower than November 2016 about 20% of the time; about 80% of the time in November it has been higher.
- Average stream flow in November 2011 was 1171 cfs. The statistical composite of all historical data for this gage shows that average streamflow for November has historically been lower than November 2011 about 10% of the time; about 90% of the time in November it has been higher.
- Average stream flow in November 2007 was 1119 cfs. The statistical composite of all historical data for this gage shows that average streamflow for November has historically been lower than November 2007 about 10% of the time; about 90% of the time in November 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

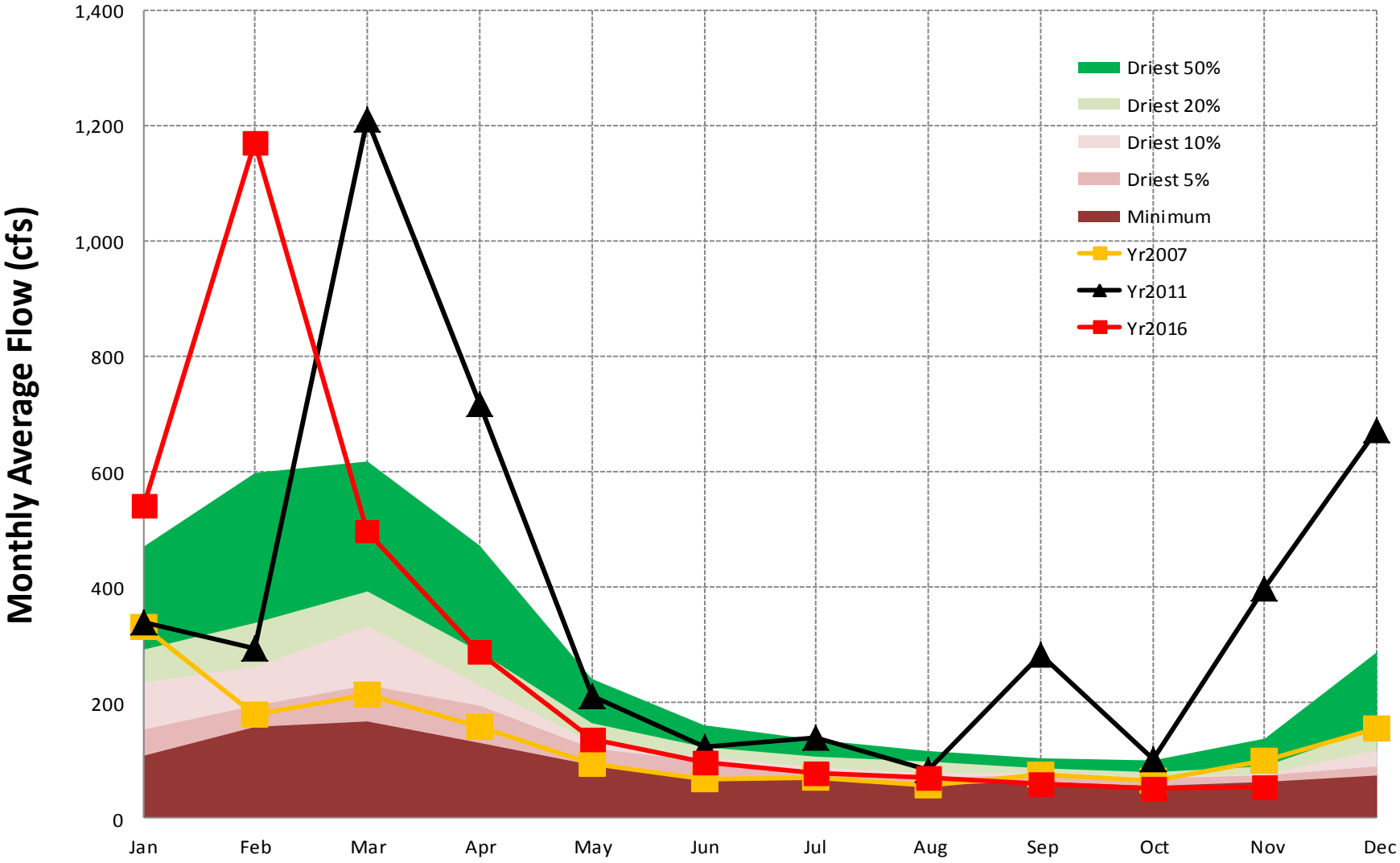
Back to Map

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

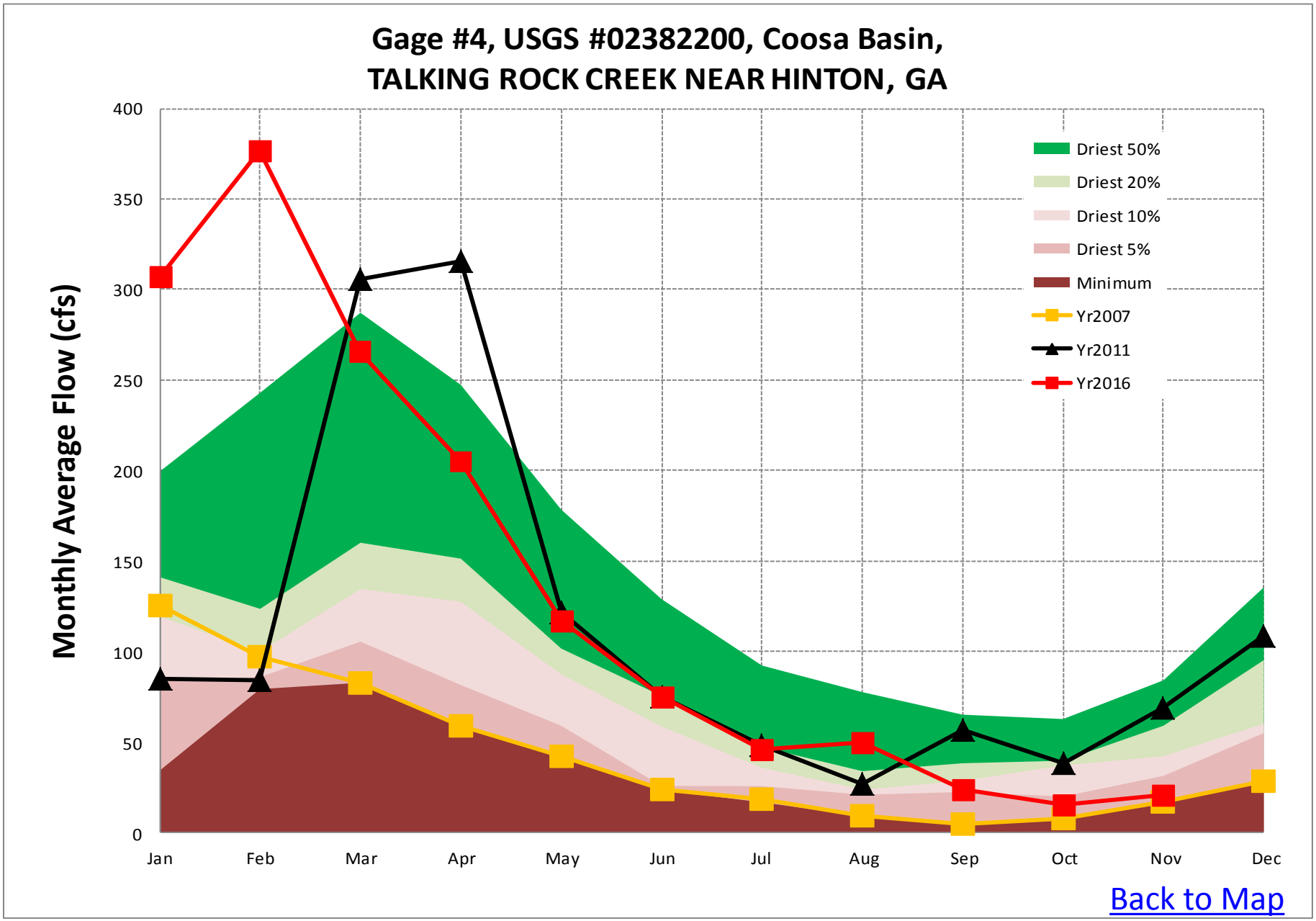


Back to Map

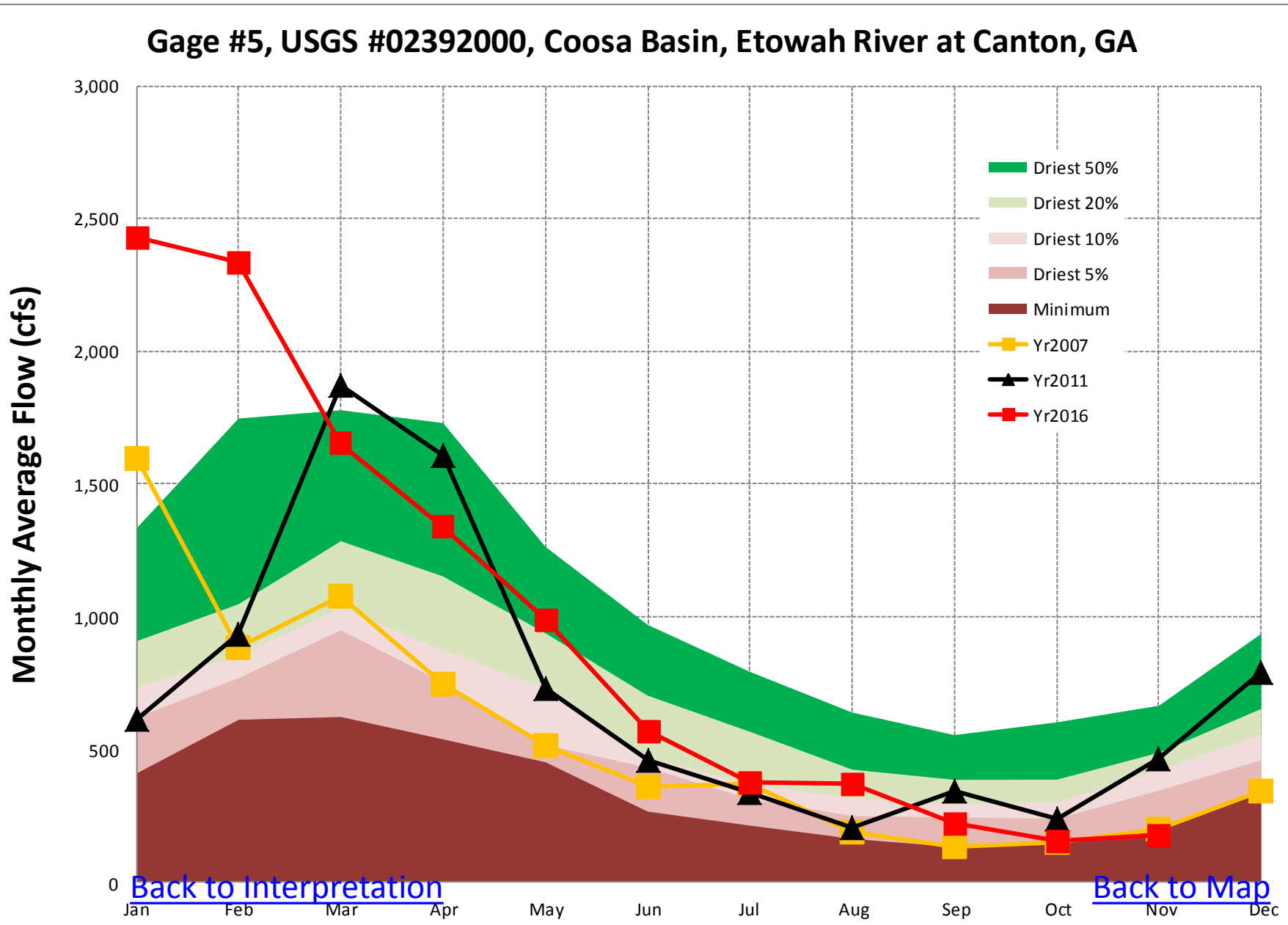
Gage #3. USGS #02398000, Coosa Basin, Chattooga River at Summerville, GA



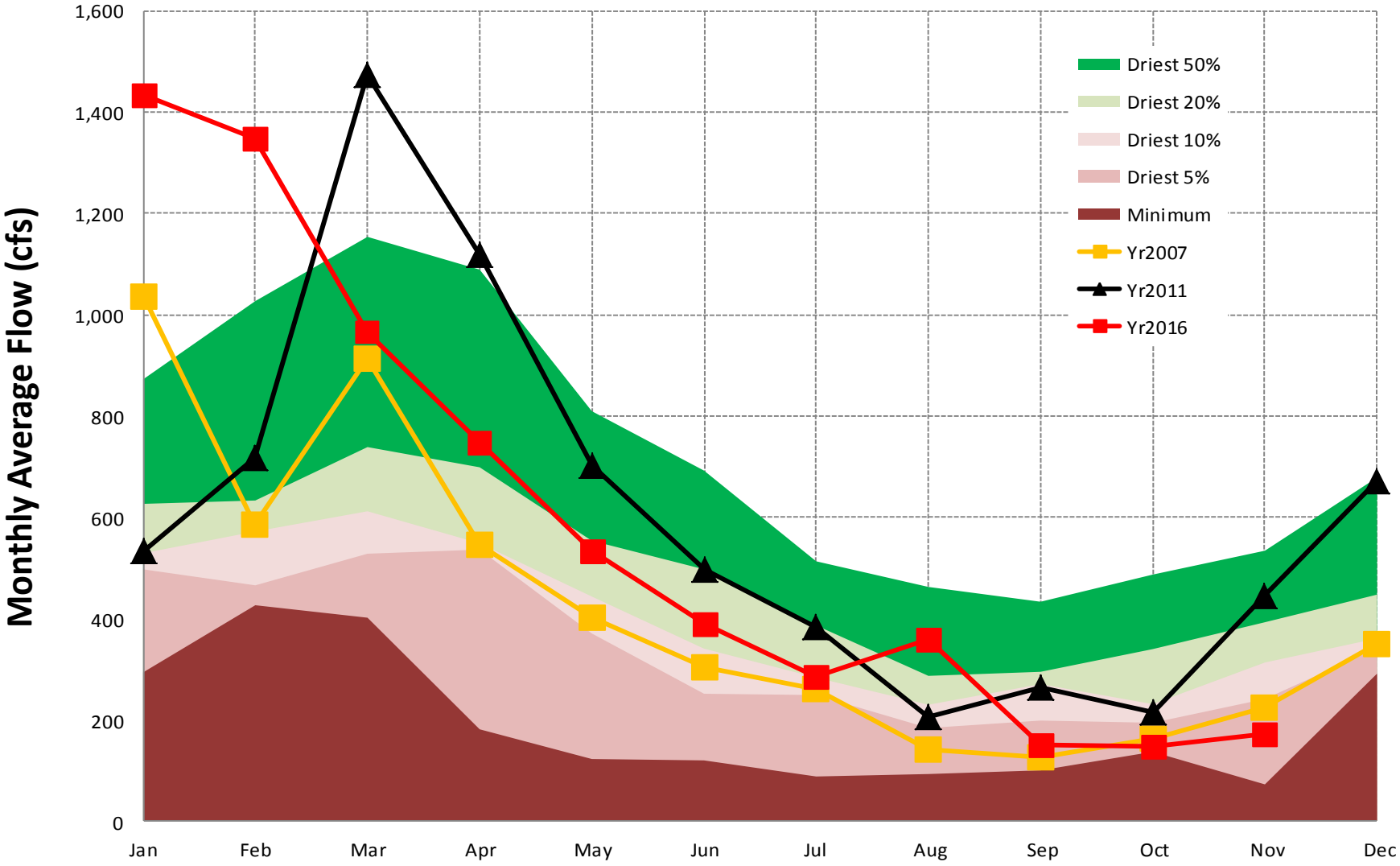
Back to Map


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

Back to Map

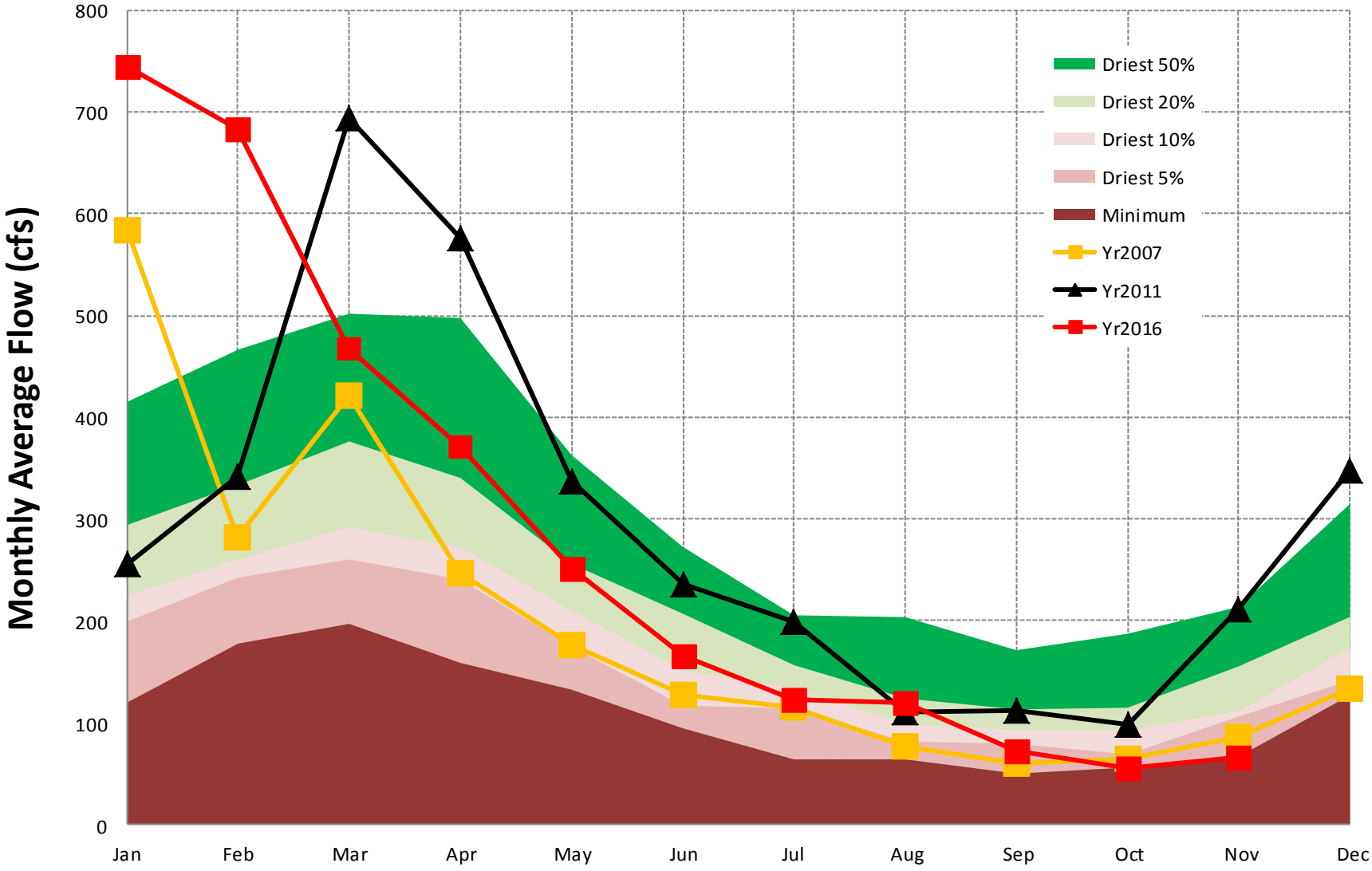

Gage #5, USGS #02392000, Coosa Basin, Etowah River at Canton, GA
Monthly Average Flow (cfs)
3,000
2,500
2,000
1,500
1,000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016
Back to Interpretation
Back to Map

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

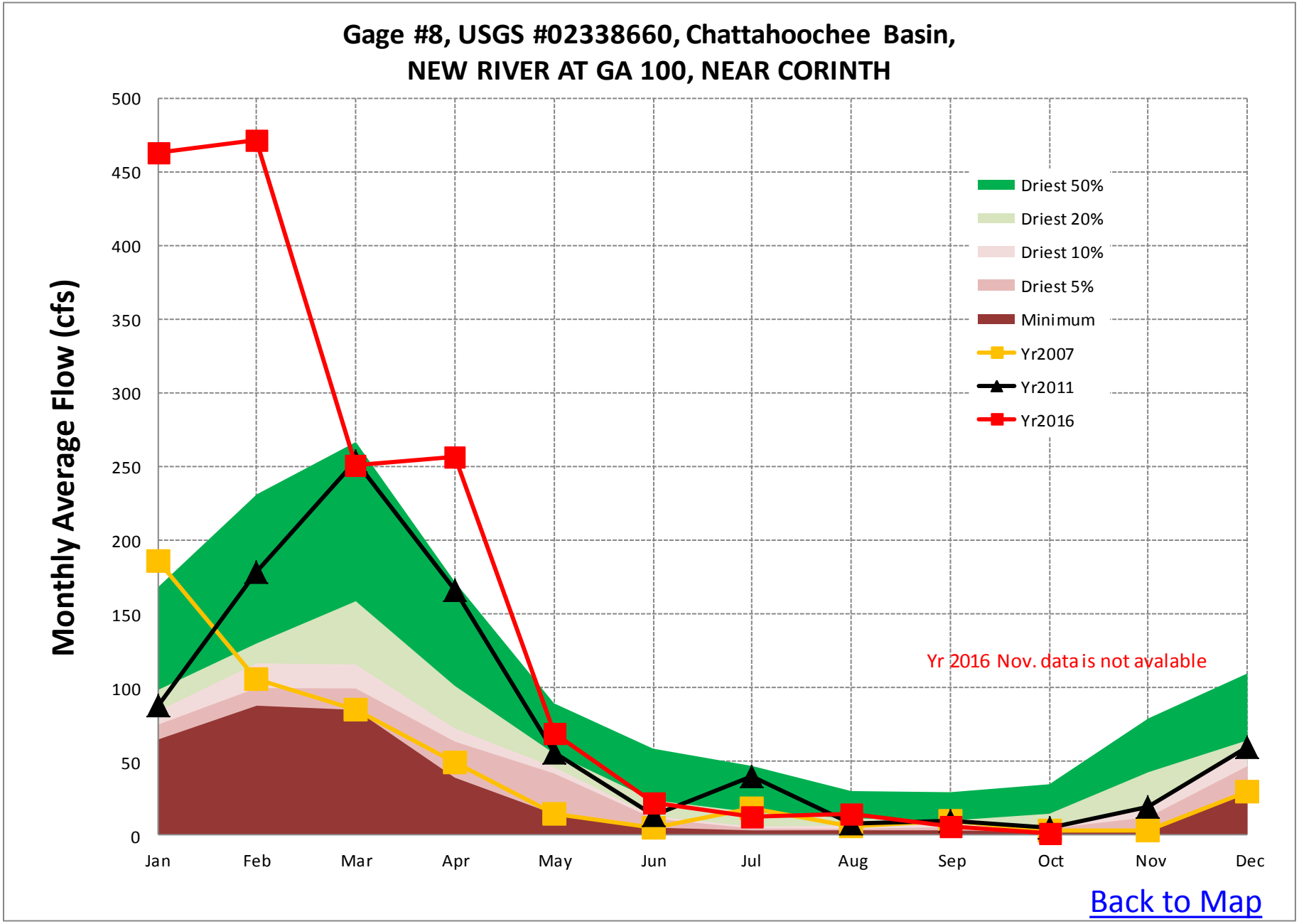


Back to Map

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

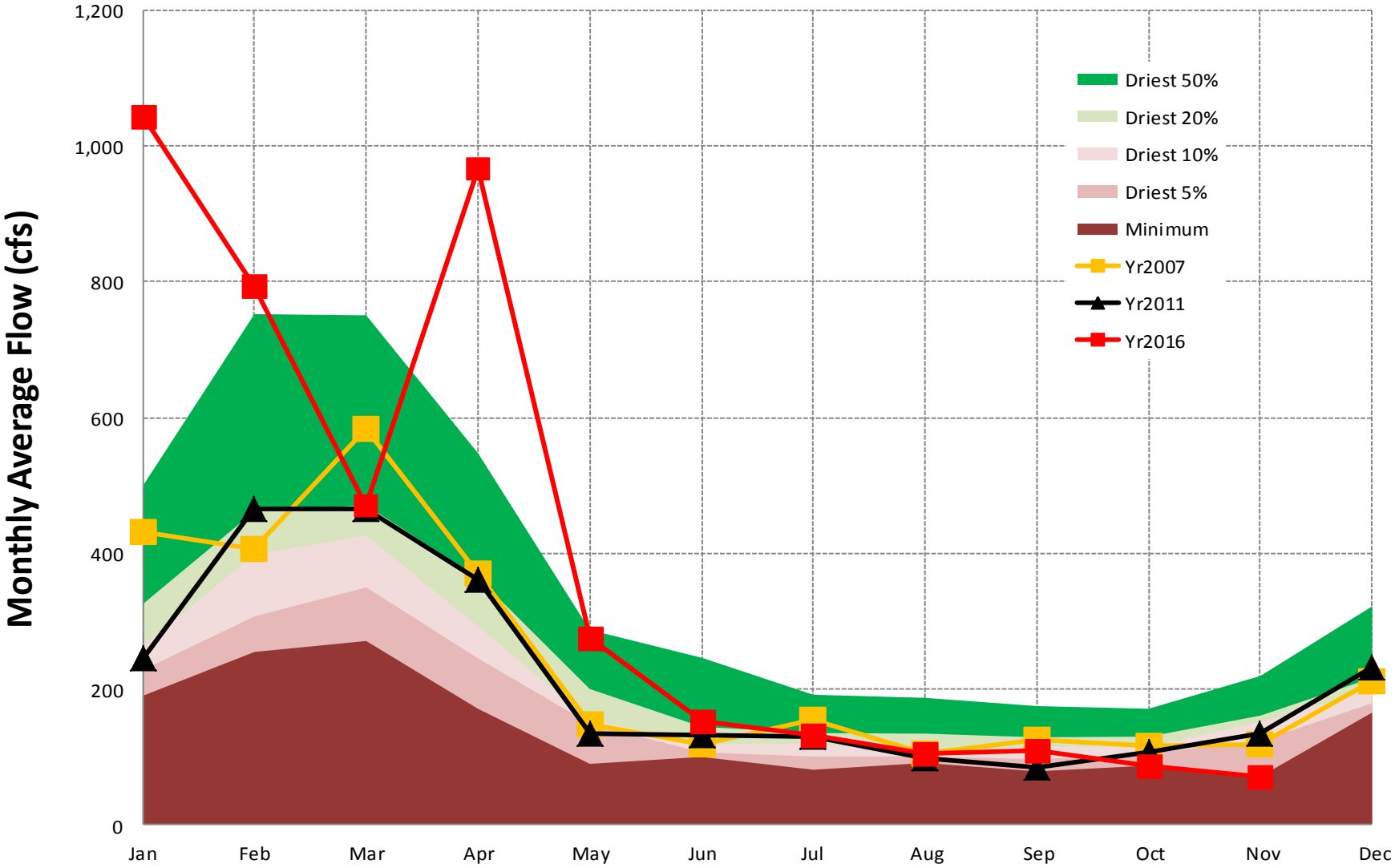


Back to Map


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
Yr 2016 Nov. data is not avalable

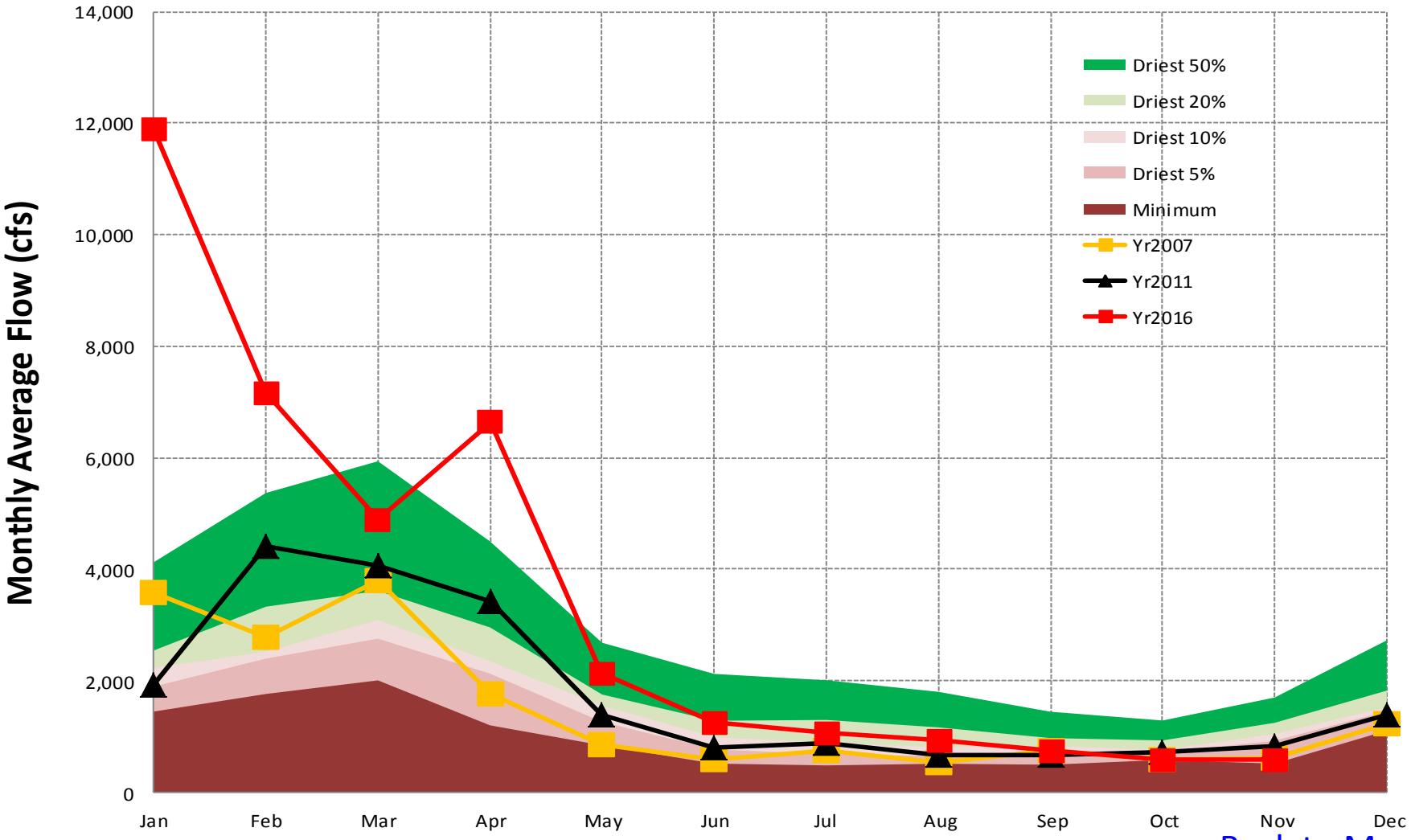
Back to Map

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

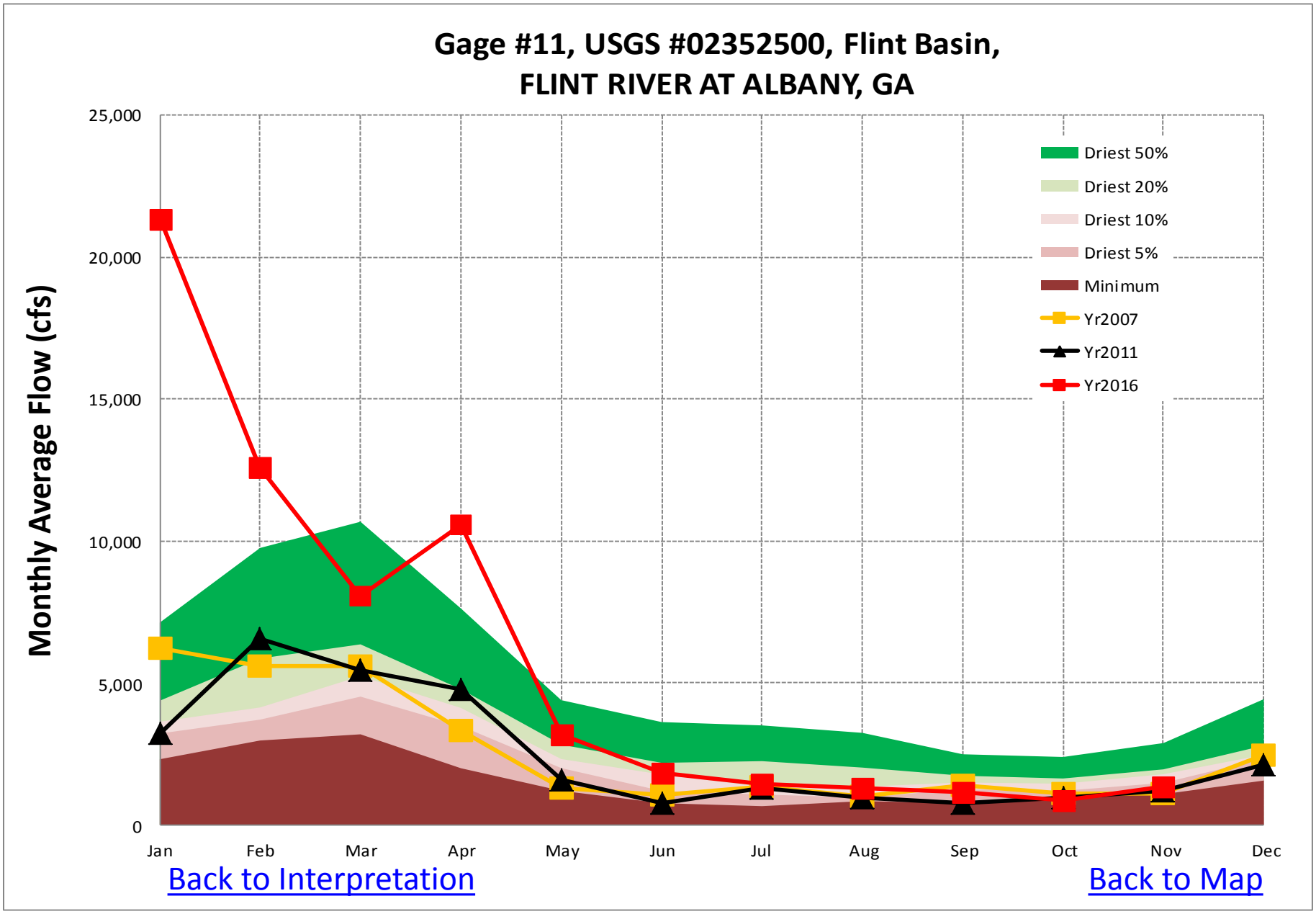


Back to Map

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

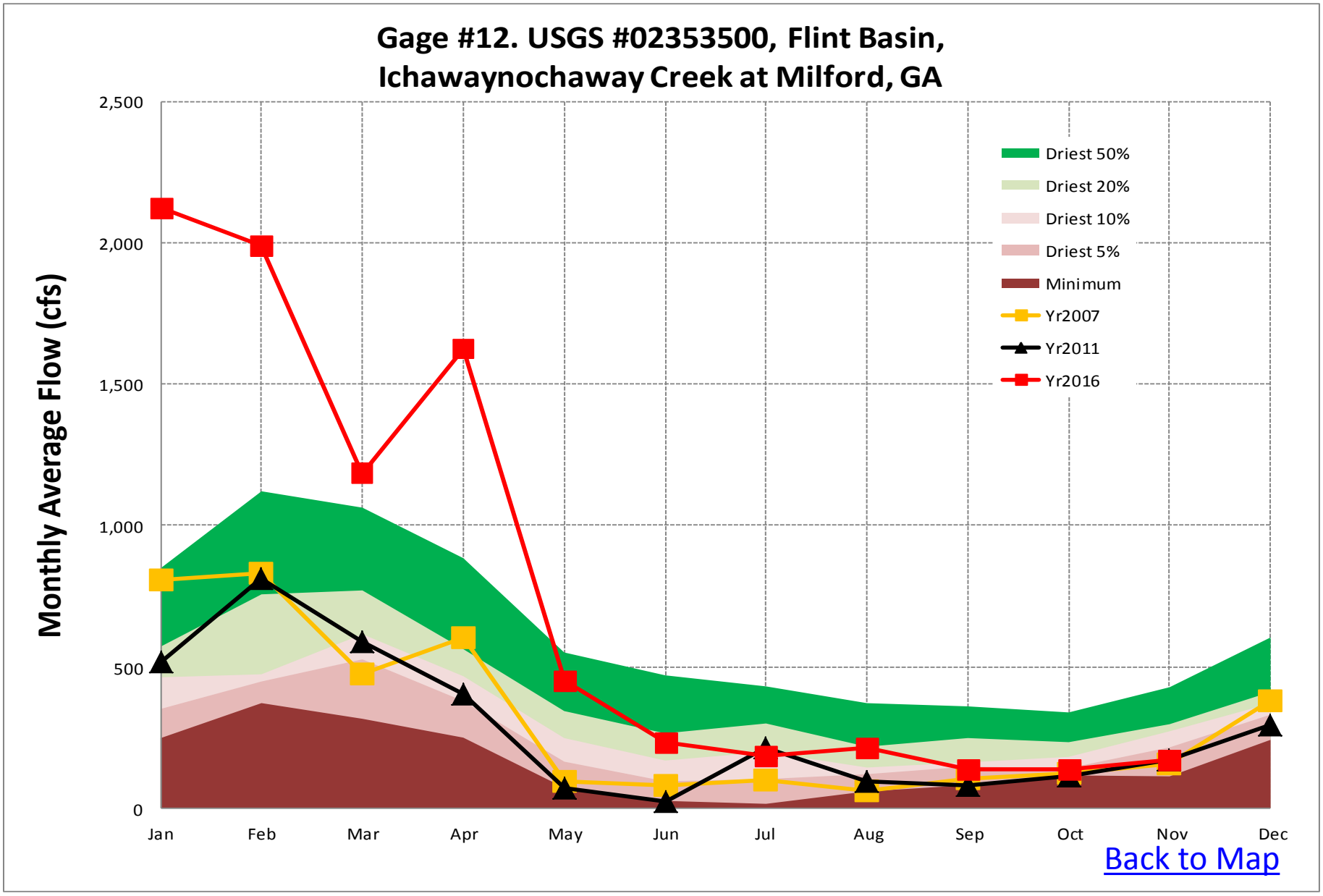


Back to Map



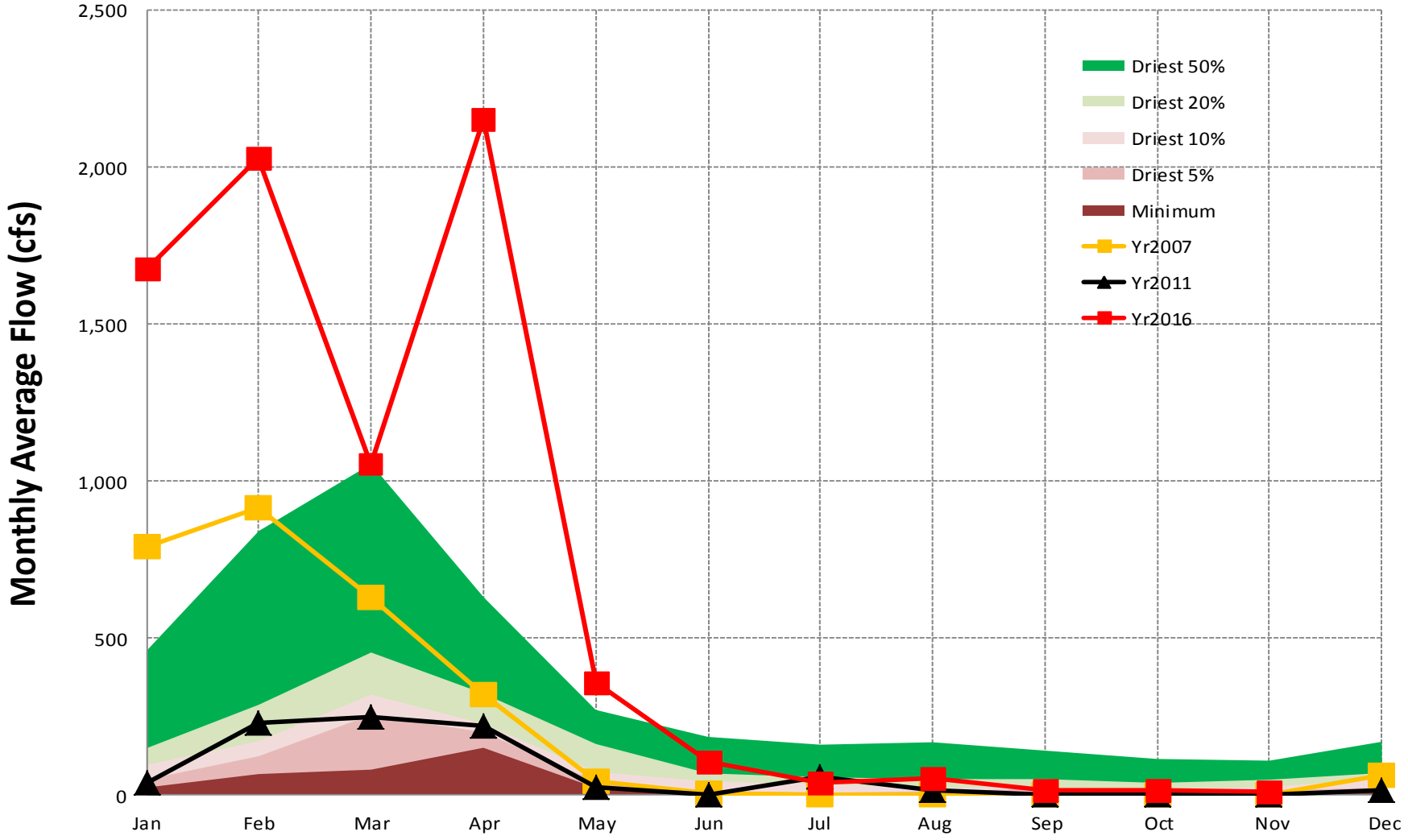
Back to Interpretation

Back to Map


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

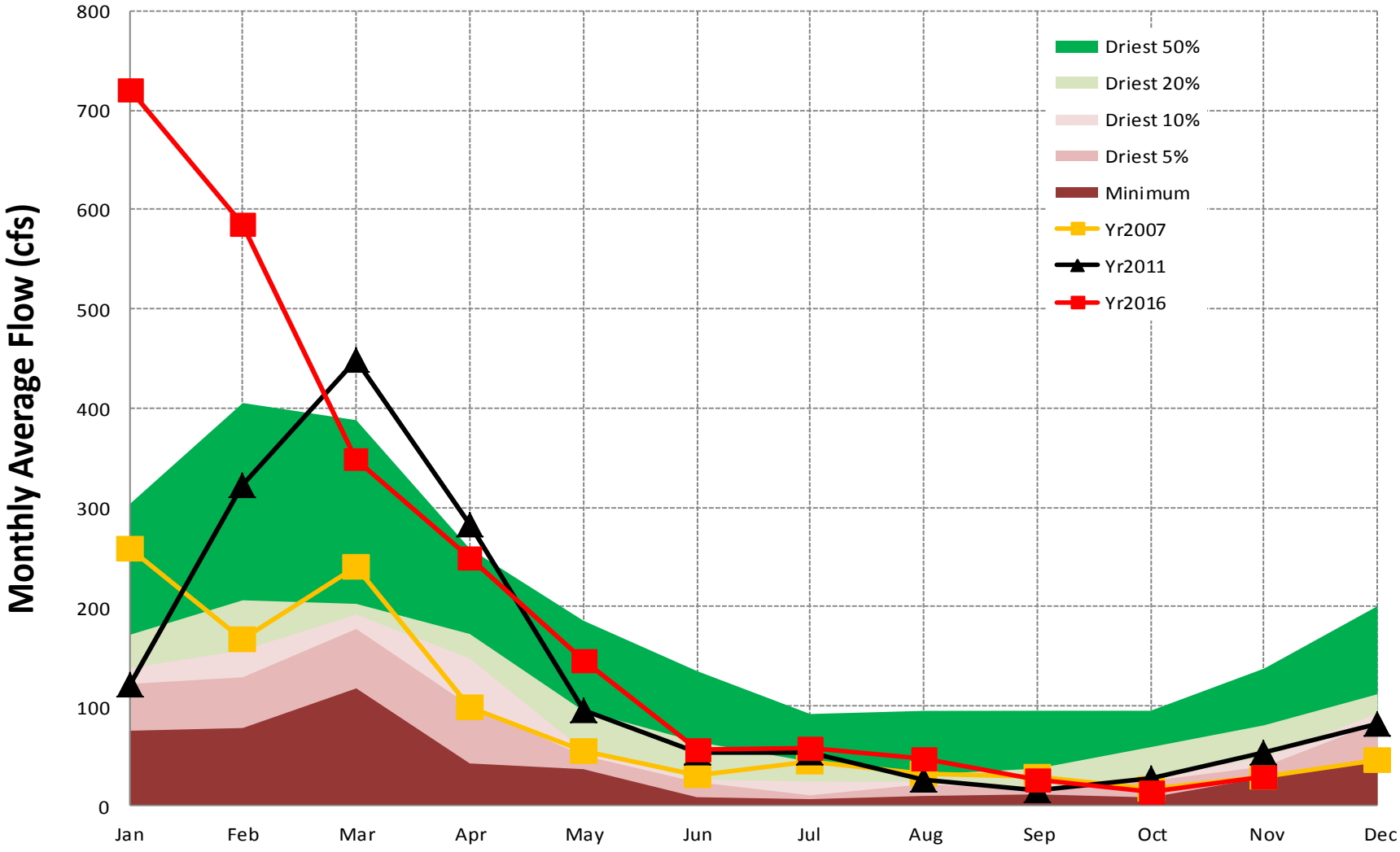
Back to Map

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



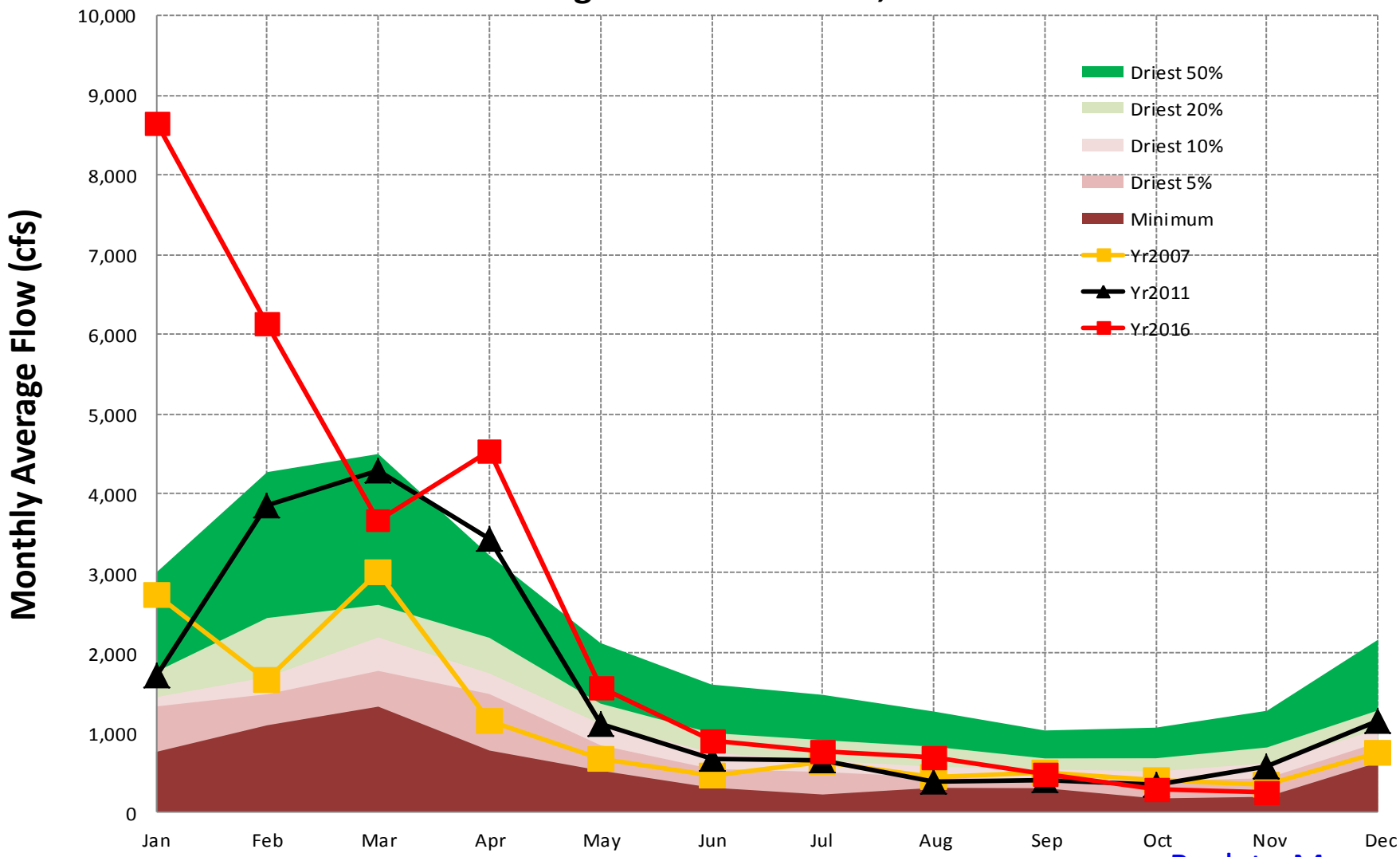
Back to Map

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

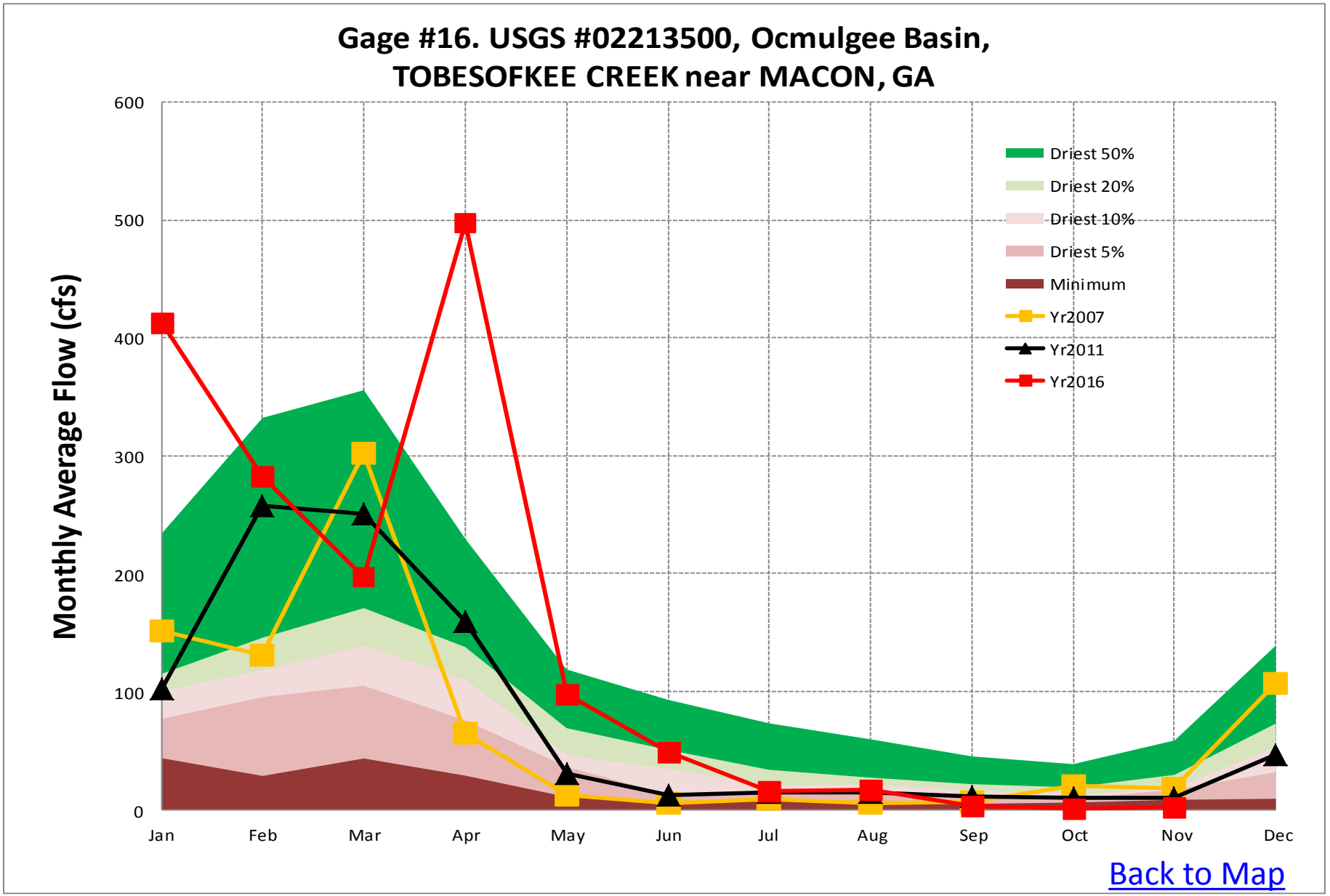


Back to Map

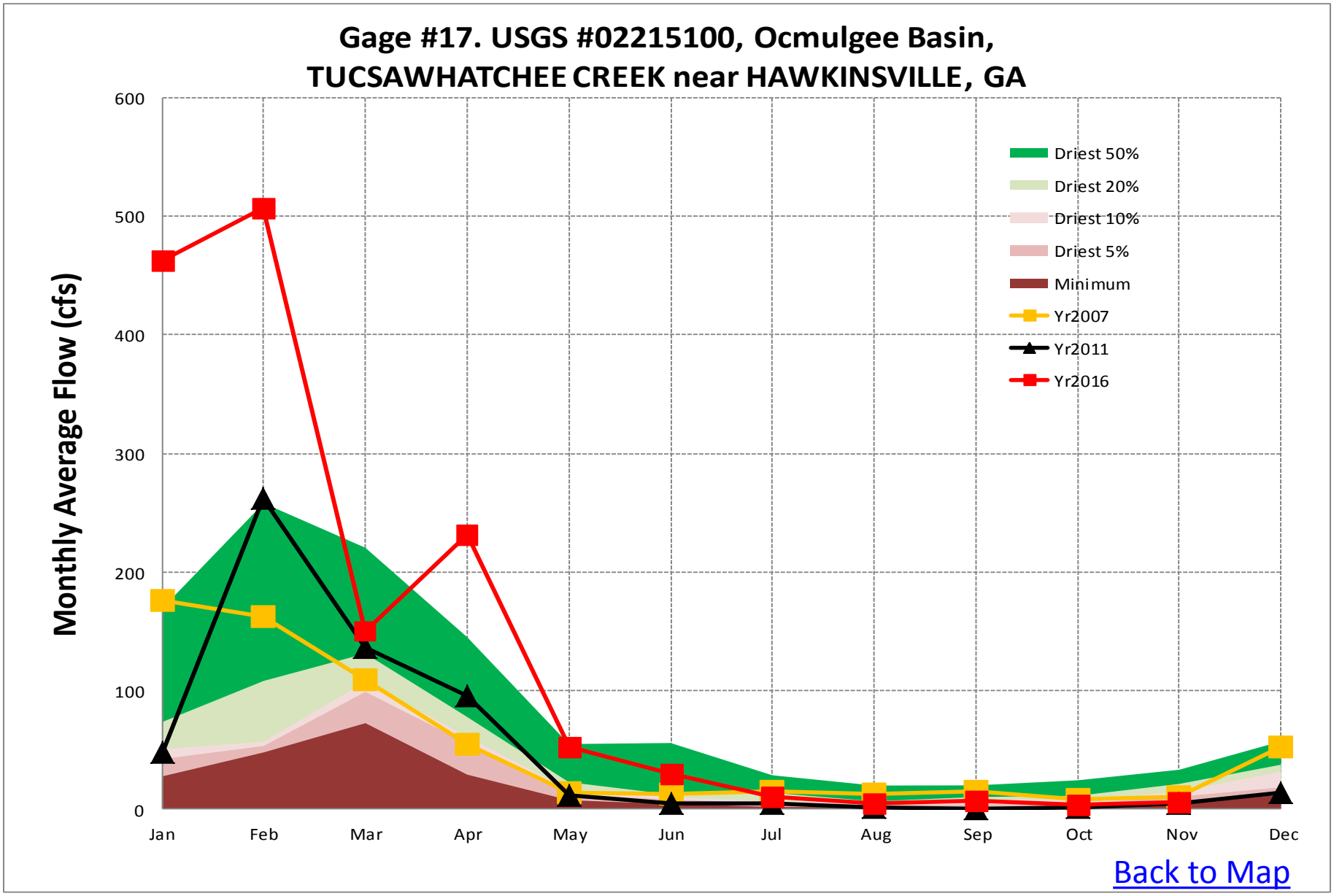
Gage #15. USGS #02213000, Ocmulgee Basin, Ocmulgee River at Macon, GA



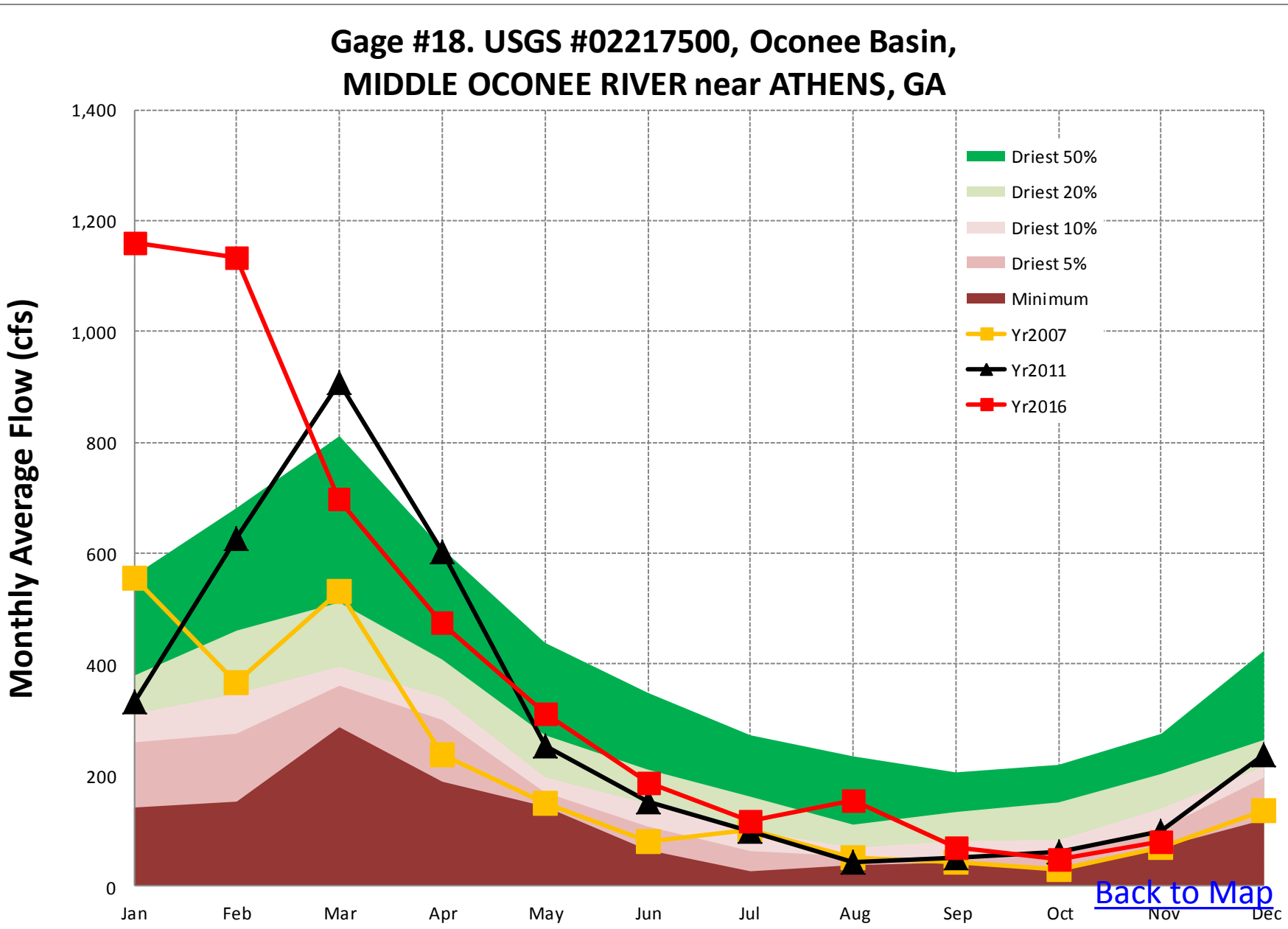
Back to Map


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

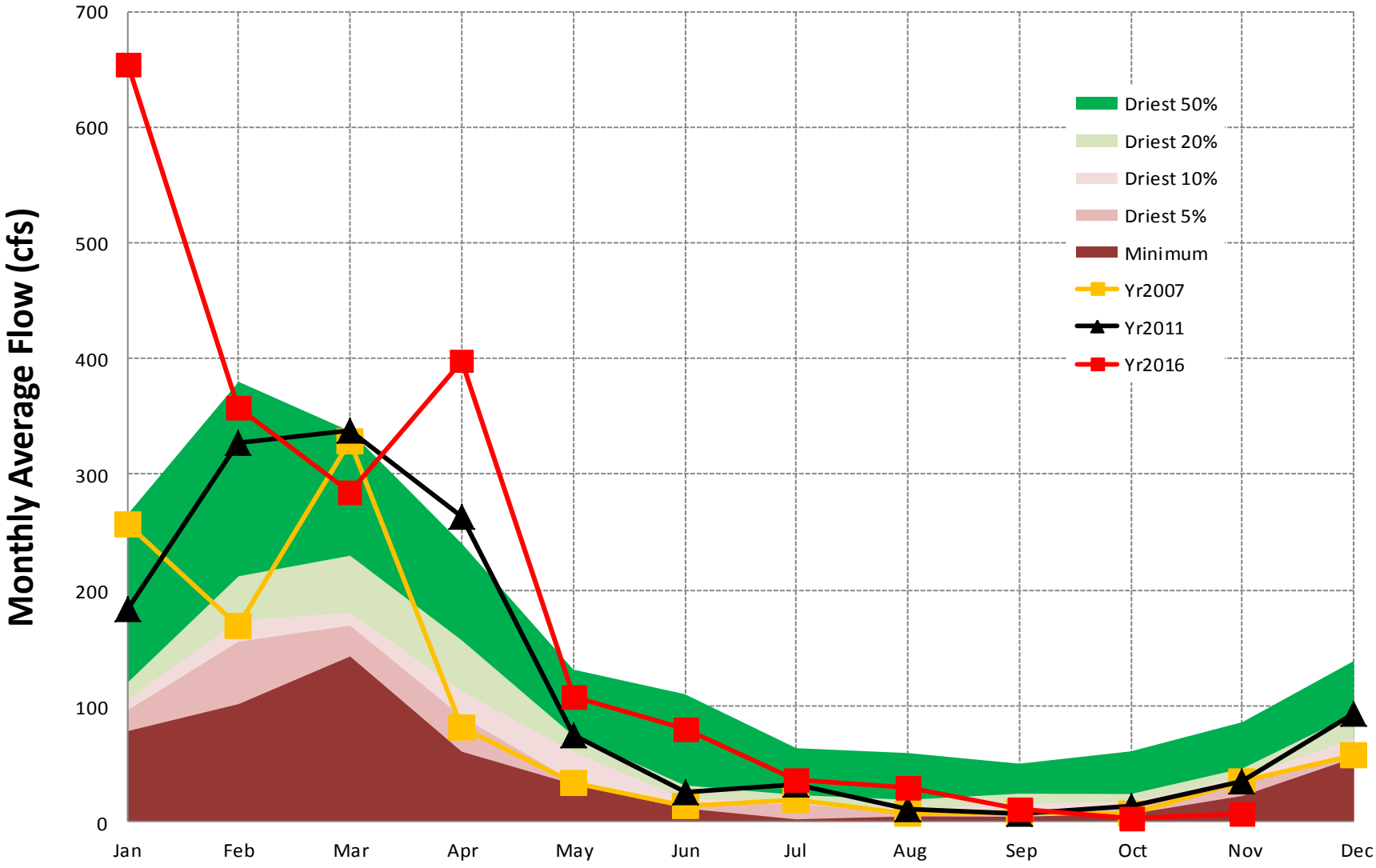
Back to Map


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

Back to Map

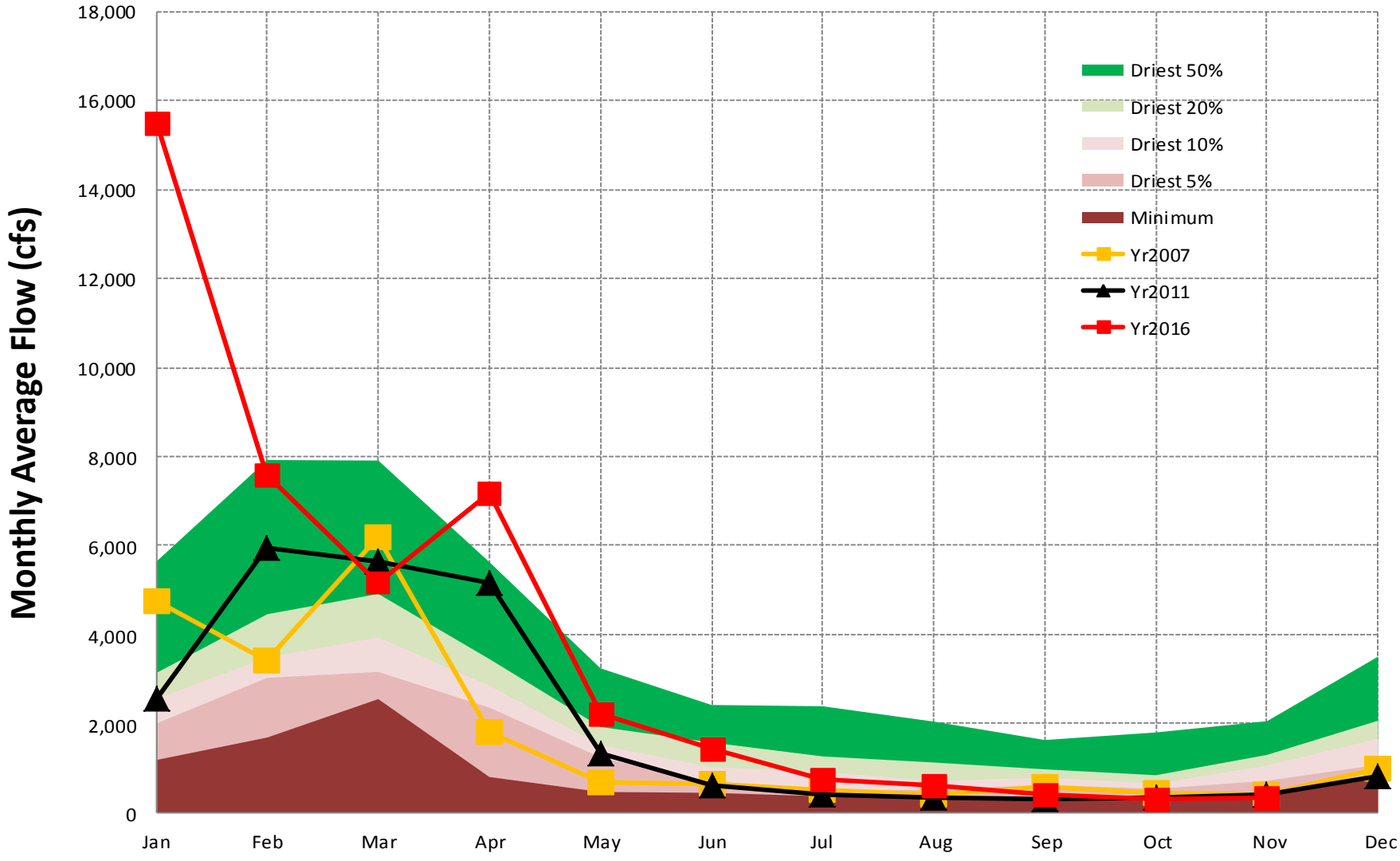

Gage #18. USGS #02217500, Oconee Basin,
MIDDLE OCONEE RIVER near ATHENS, GA
Monthly Average Flow (cfs)
1,400
1,200
1,000
800
600
400
200
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016
Back to Map

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

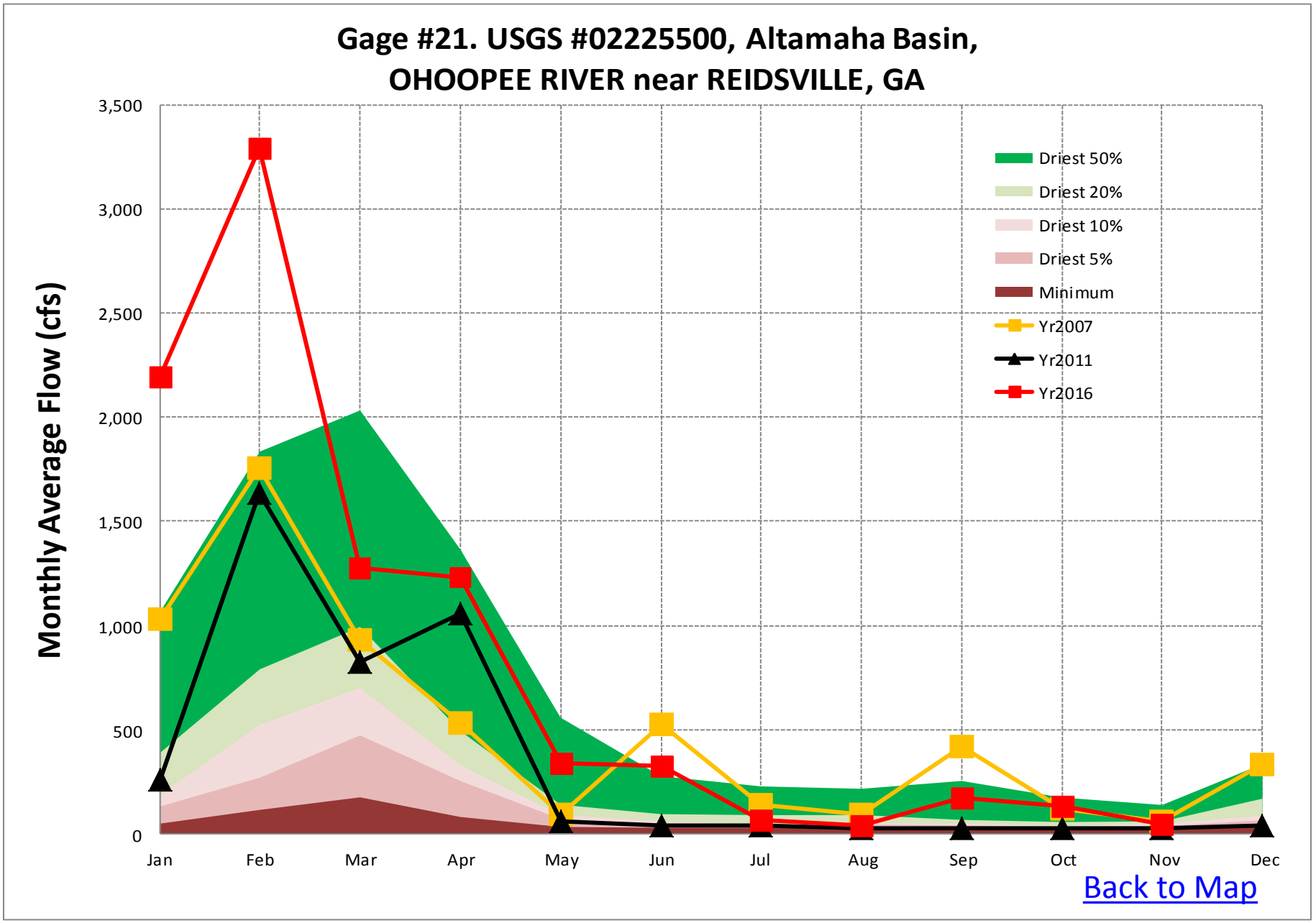


Back to Map

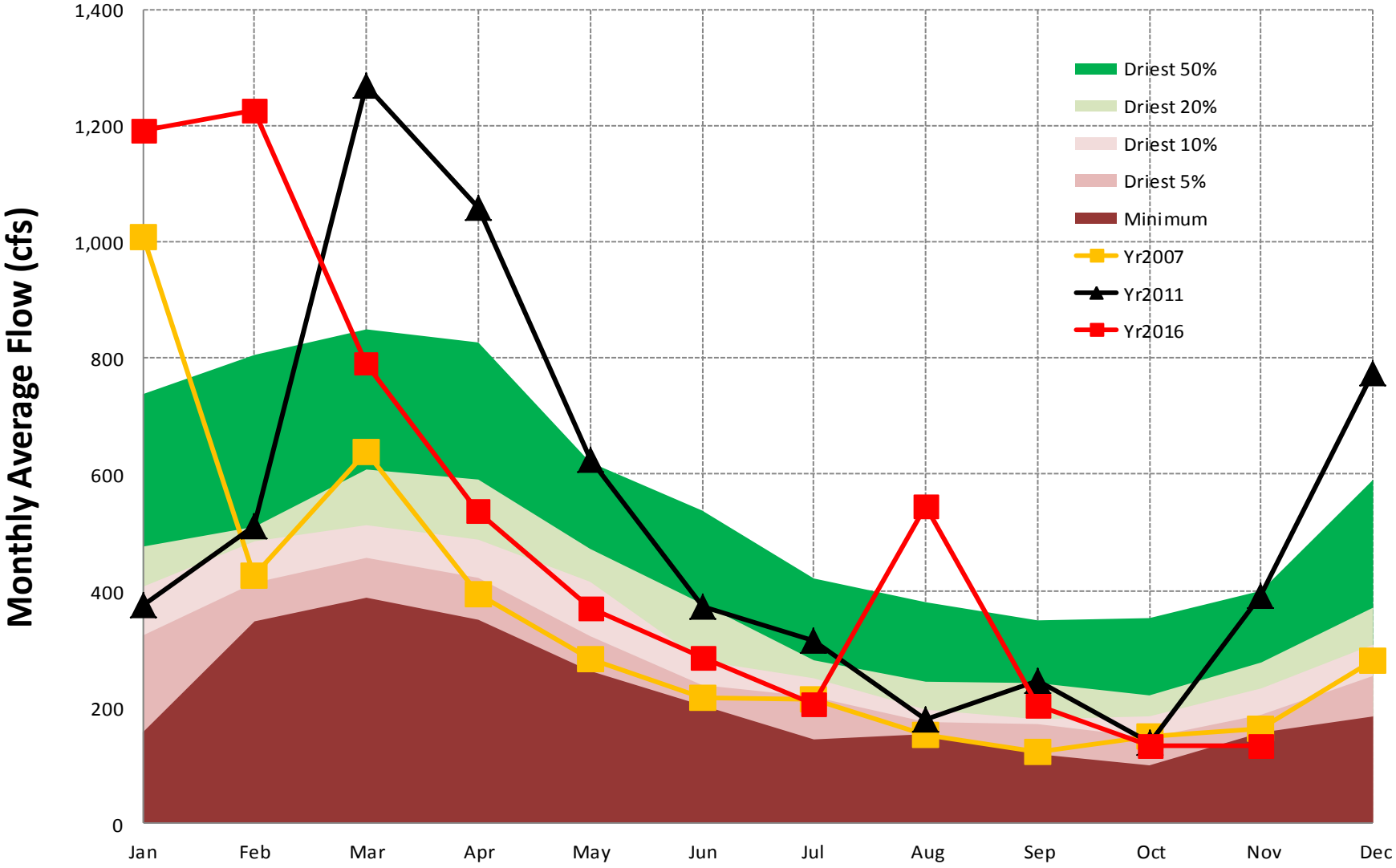
Gage #20. USGS #02223500, Oconee Basin, Oconee River at Dublin, GA



Back to Map

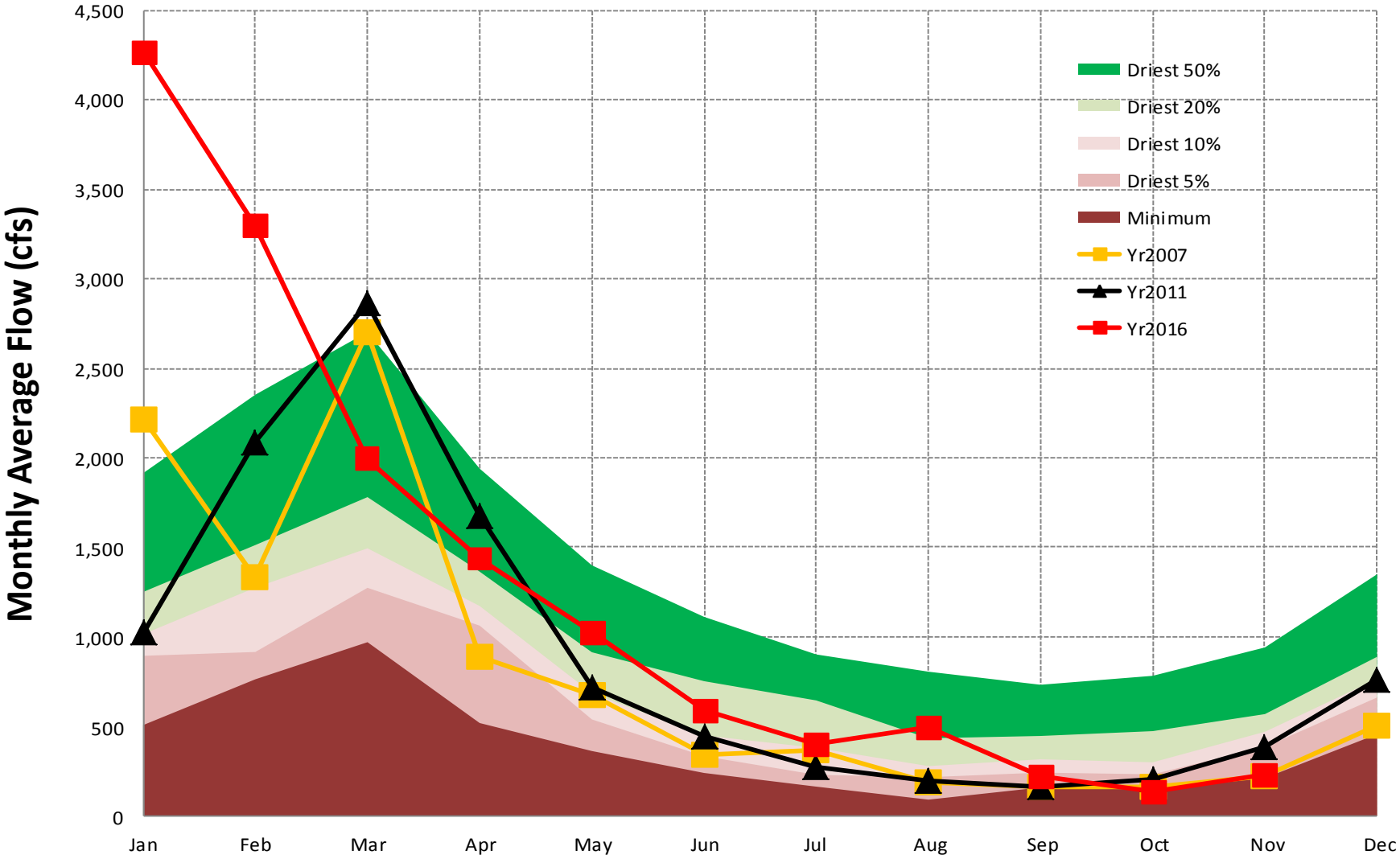

Gage #21. USGS #02225500, Altamaha Basin,
OHOOPEE RIVER near REIDSVILLE, GA
Monthly Average Flow (cfs)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Driest 50%
Driest 20%
Driest 10%
Driest 5%
Minimum
Yr2007
Yr2011
Yr2016
Back to Map

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



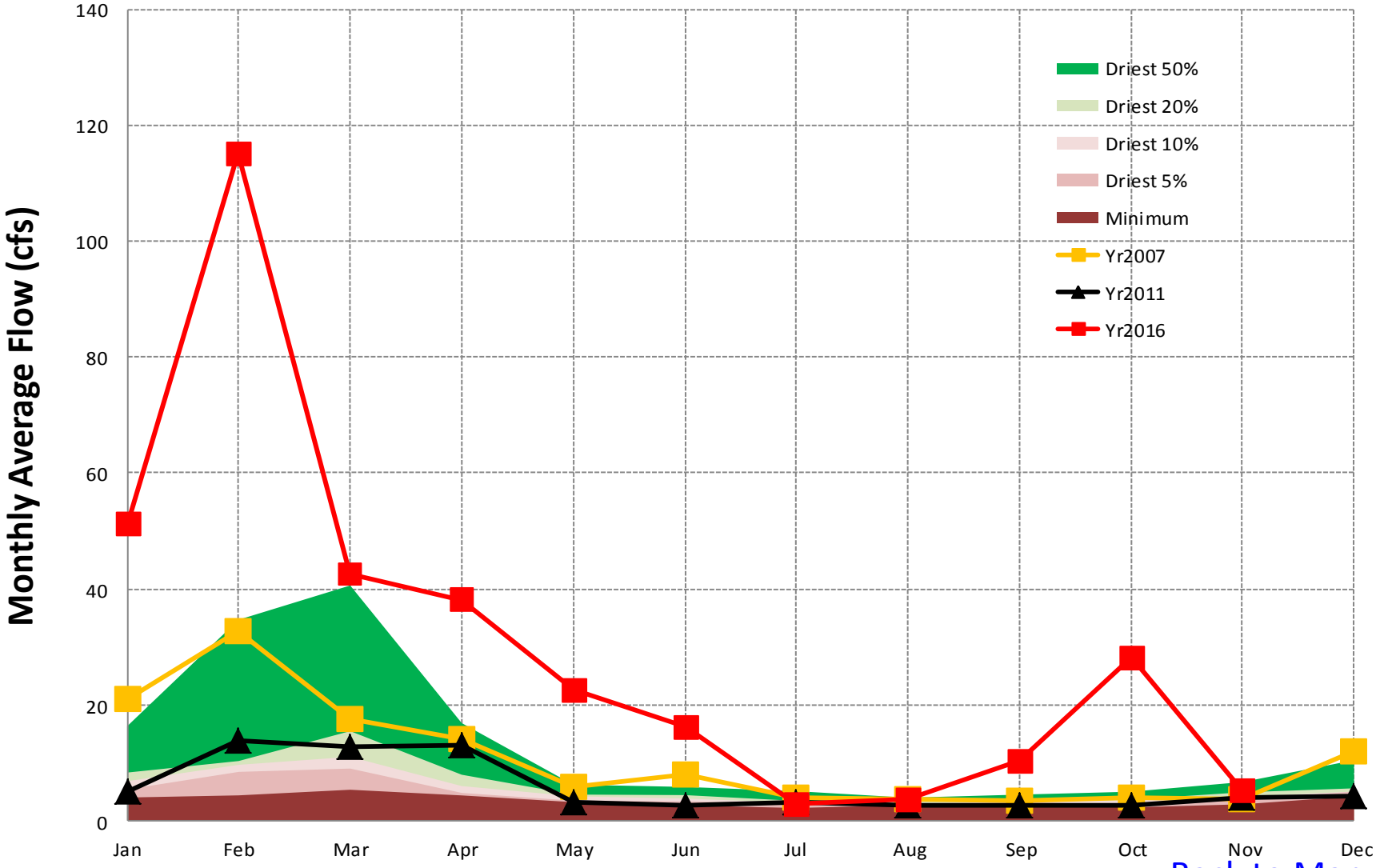
Back to Map

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



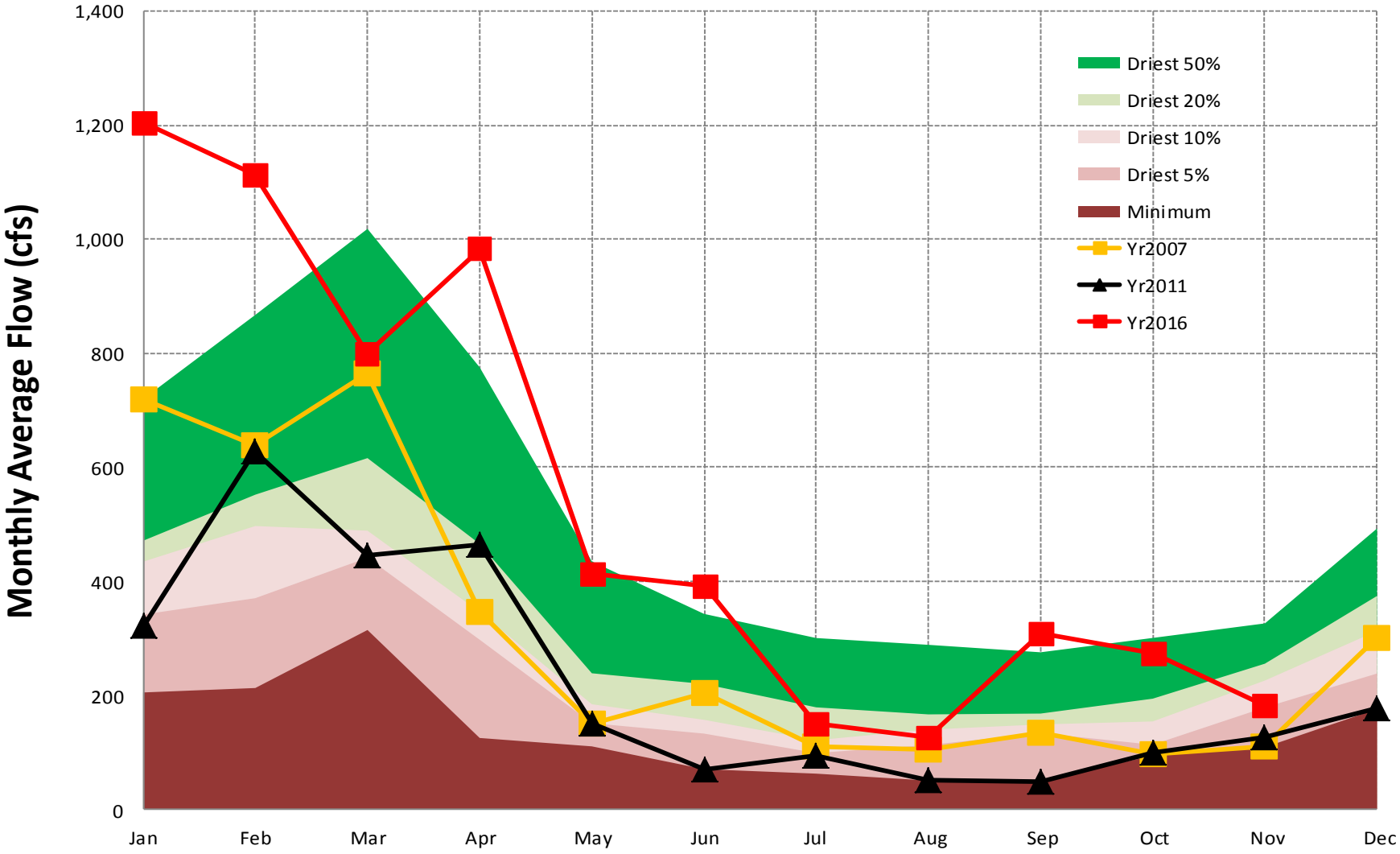
Back to Map

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



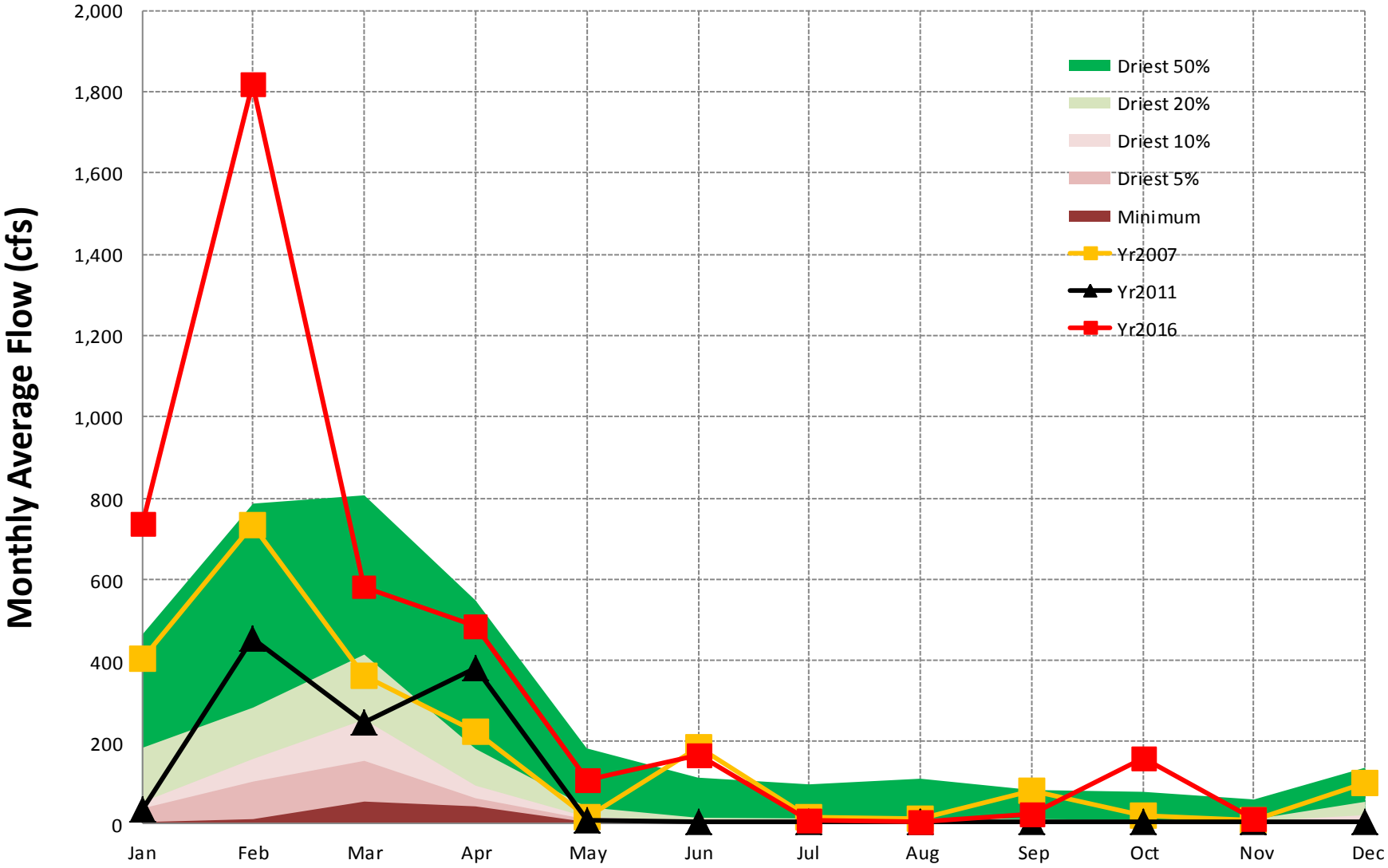
Back to Map

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



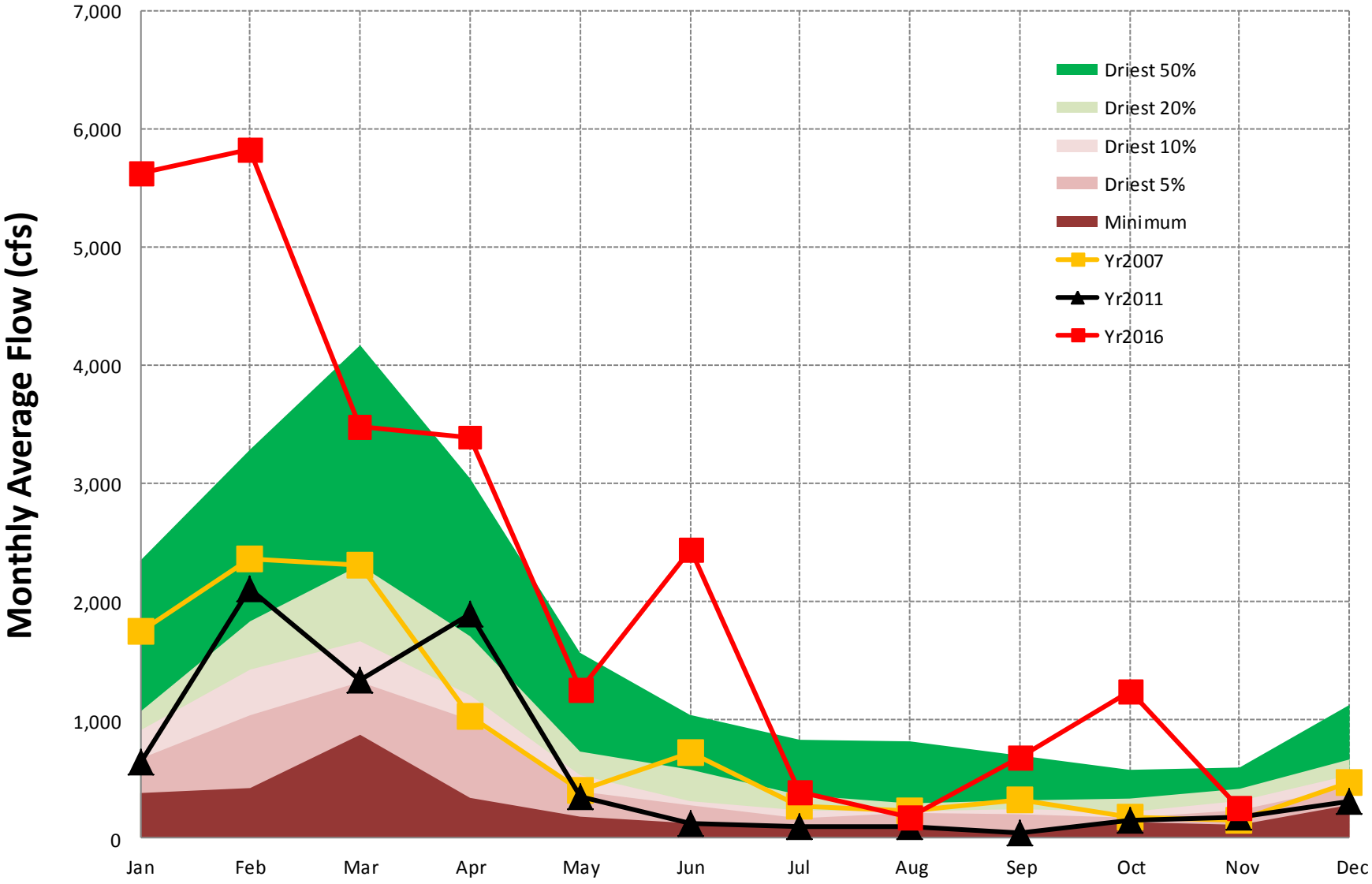
Back to Map

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



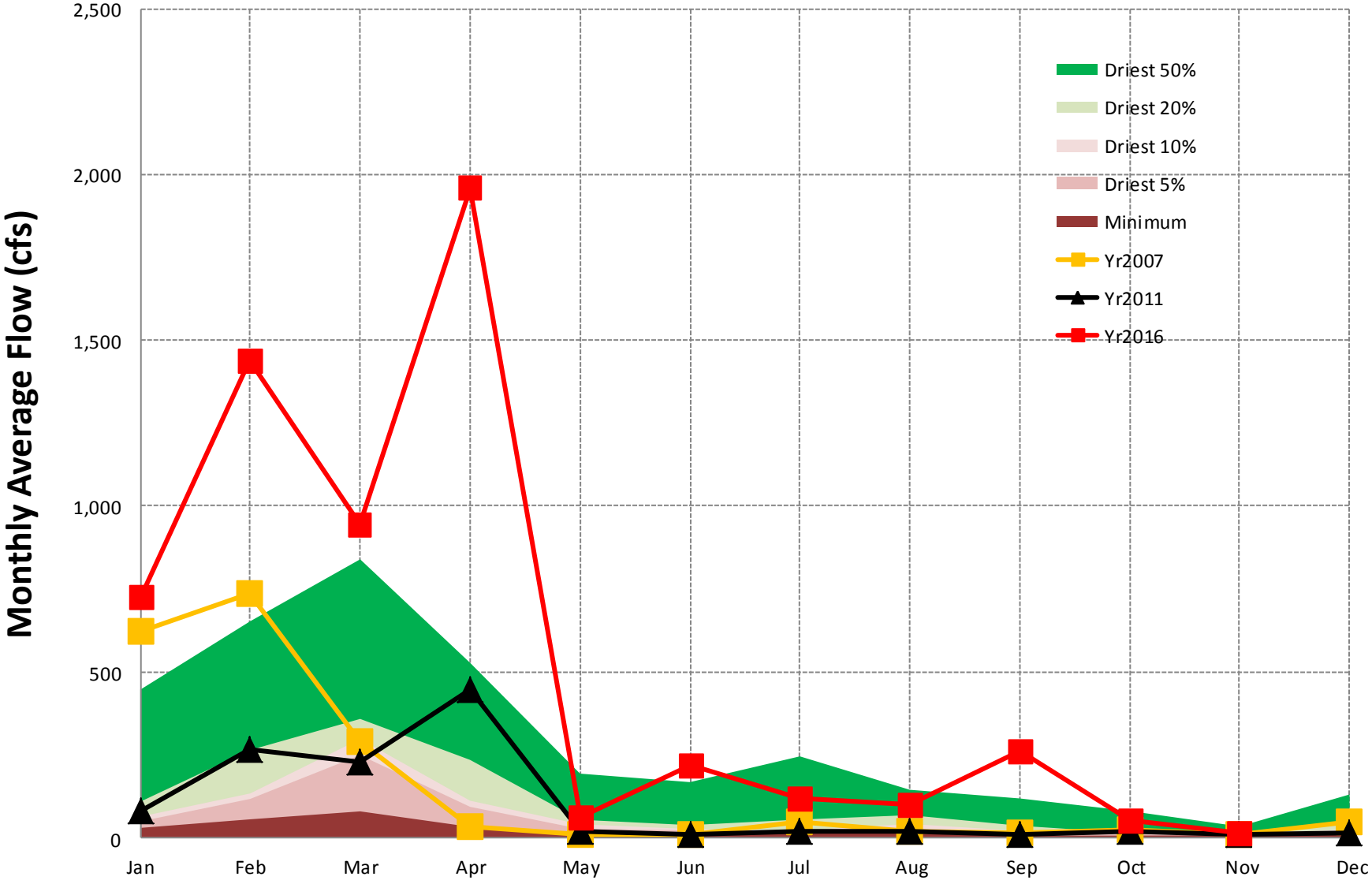
Back to Map

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



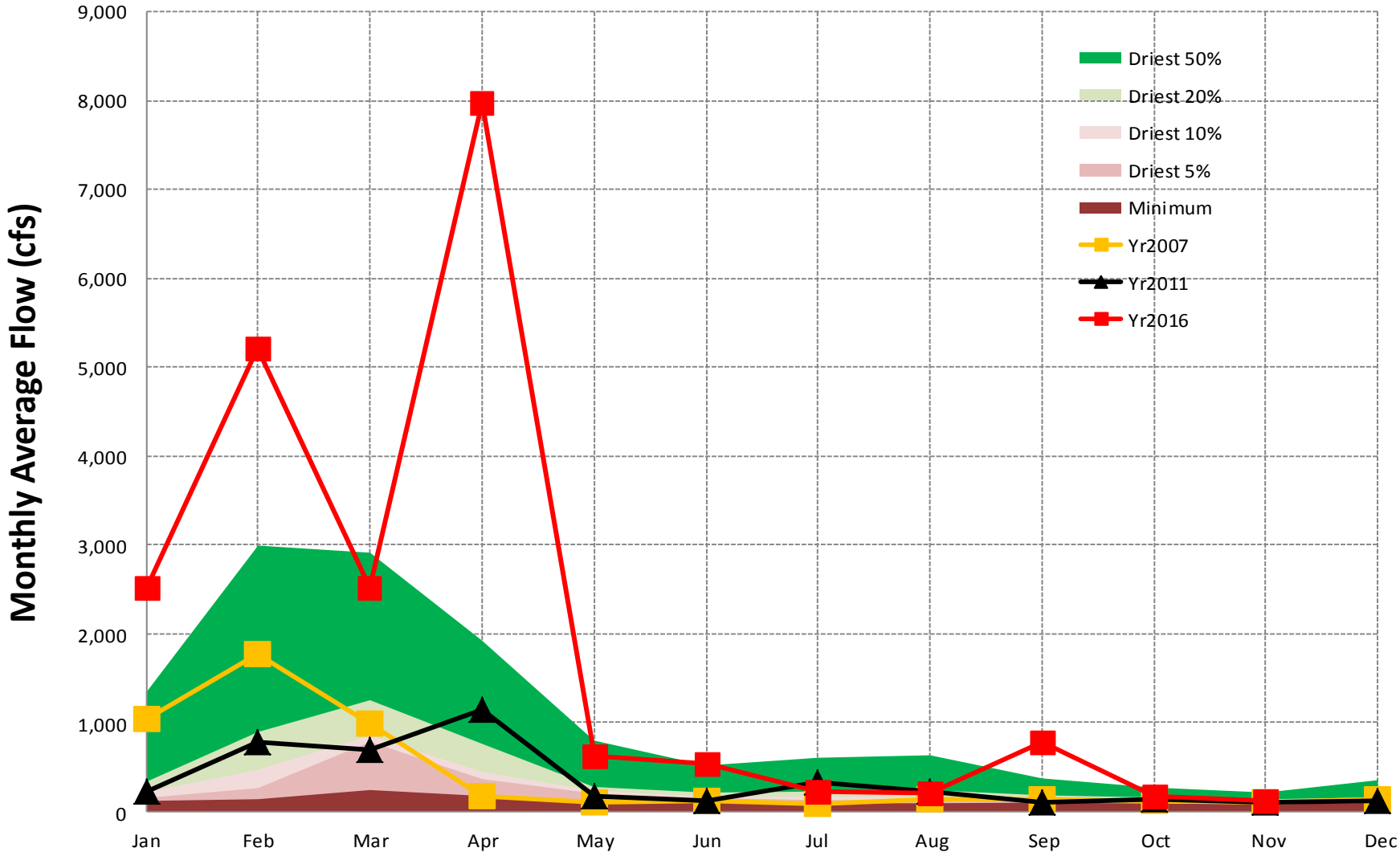
Back to Map

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



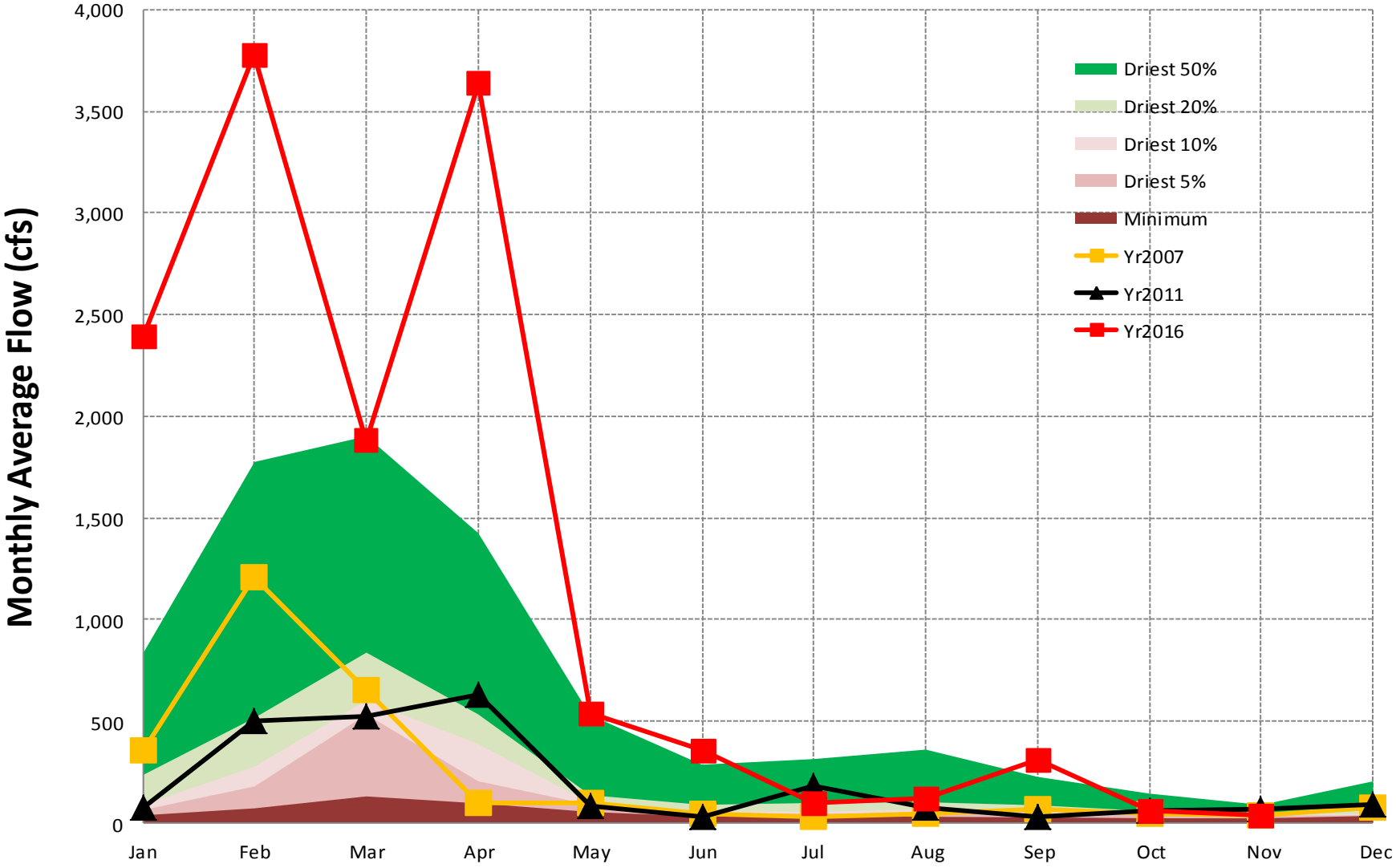
Back to Map

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



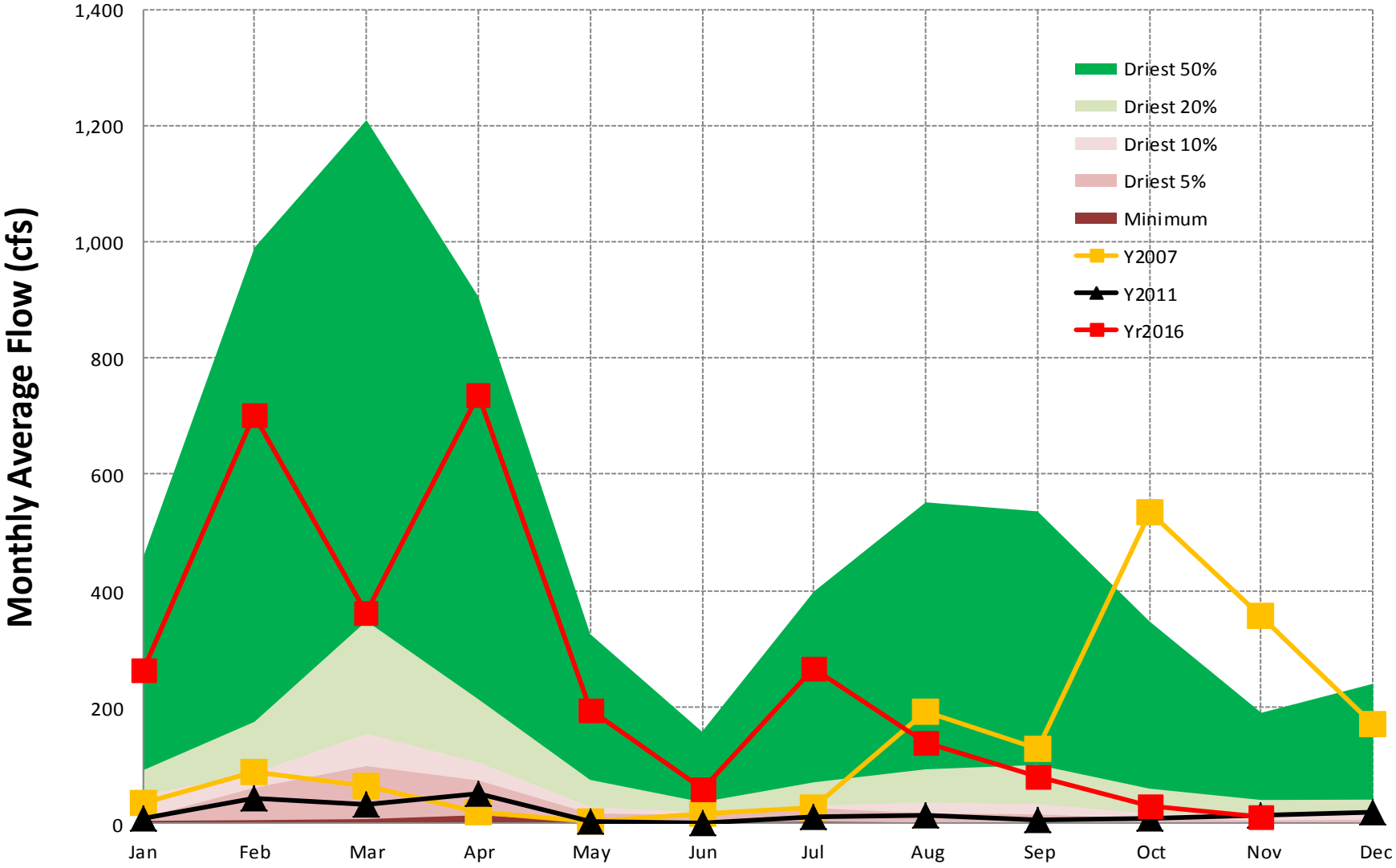
Back to Map

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



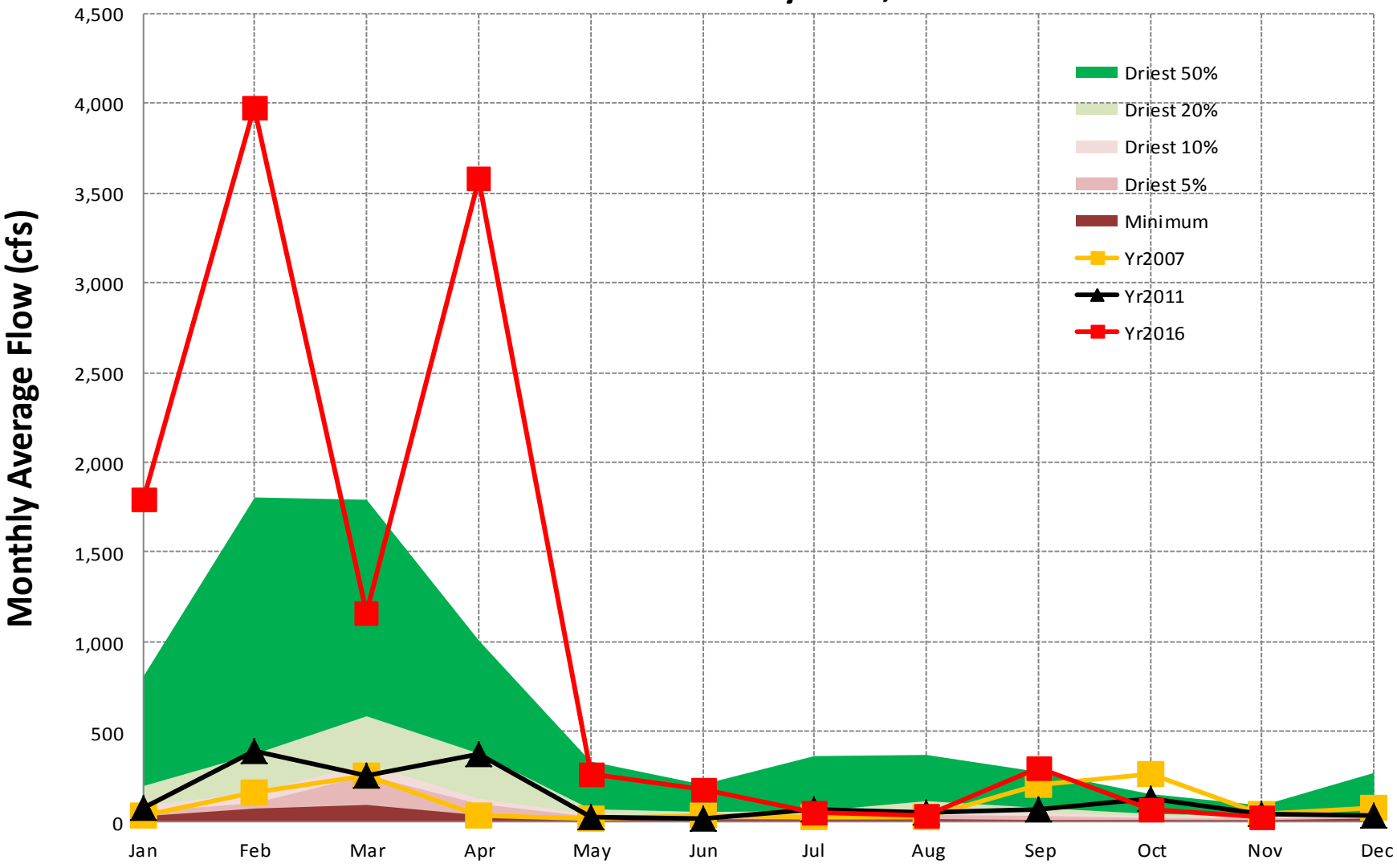
Back to Map

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



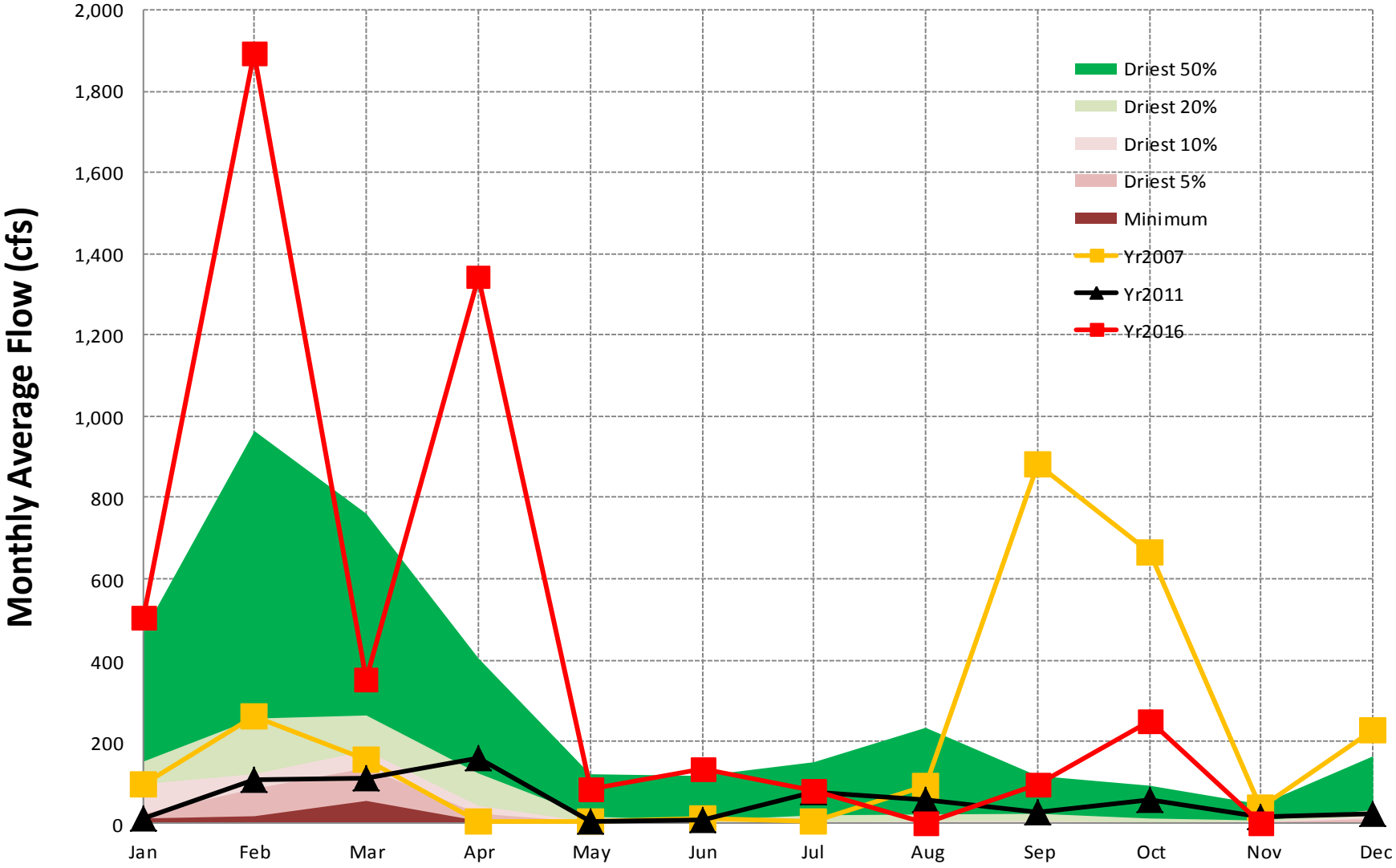
Back to Map

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



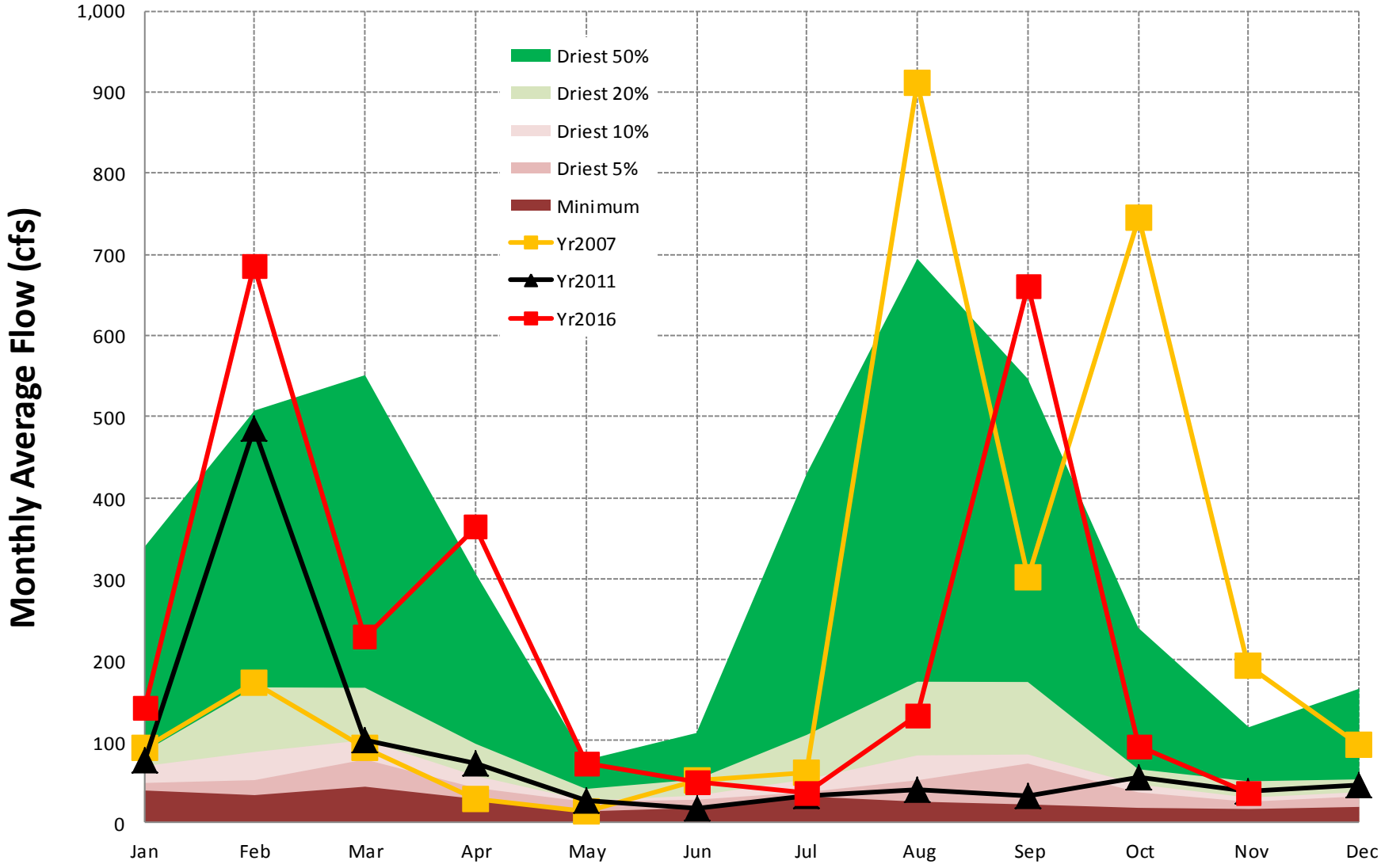
Back to Map

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 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

Savannah Basin
1. 30AA04

Flint Basin
2. 11AA01
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

Suwanee Basin
14. 19E009

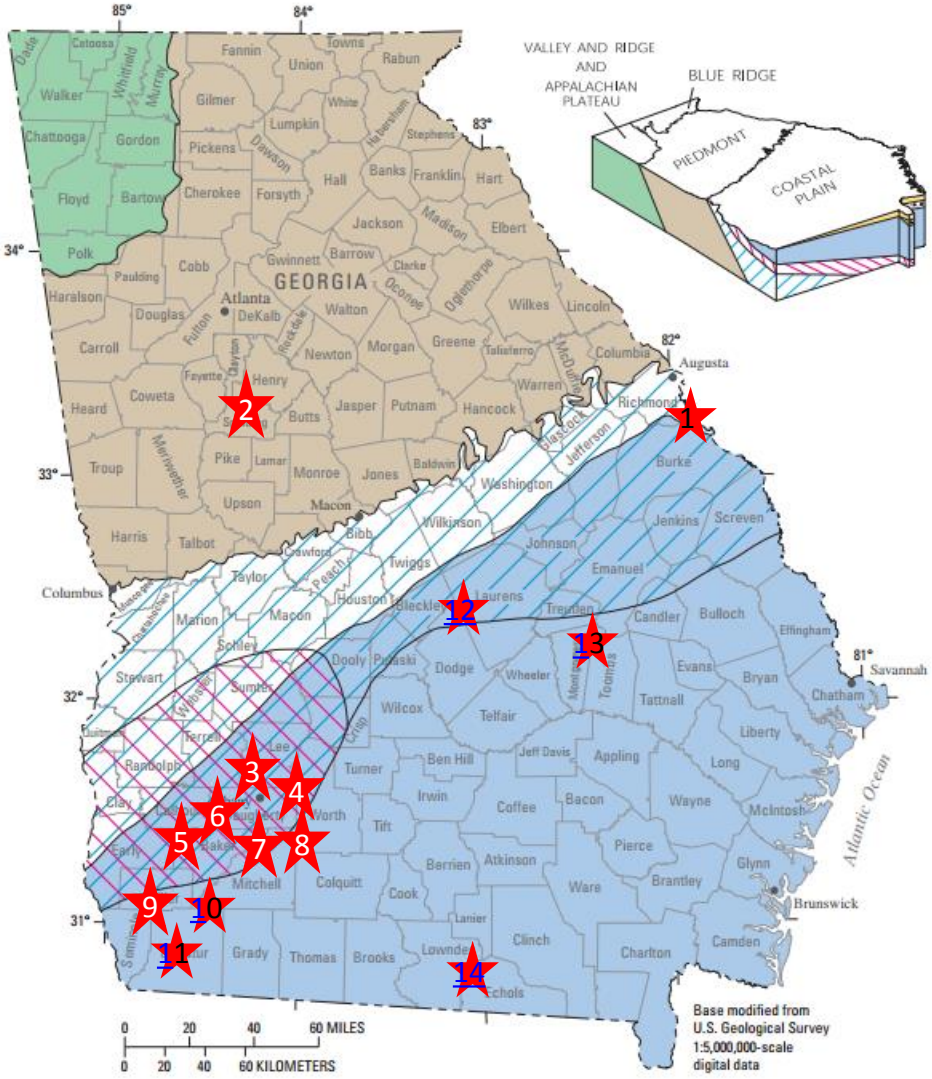


Figure 2. Area of use of principal aquifers and physiographic provinces in Georgia (modified from U.S. Geological Survey, 2006).

Groundwater Level Graphs

- For each of the 15 groundwater wells, EPD has prepared a graph that shows monthly average groundwater levels from January, 2016 through November, 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.

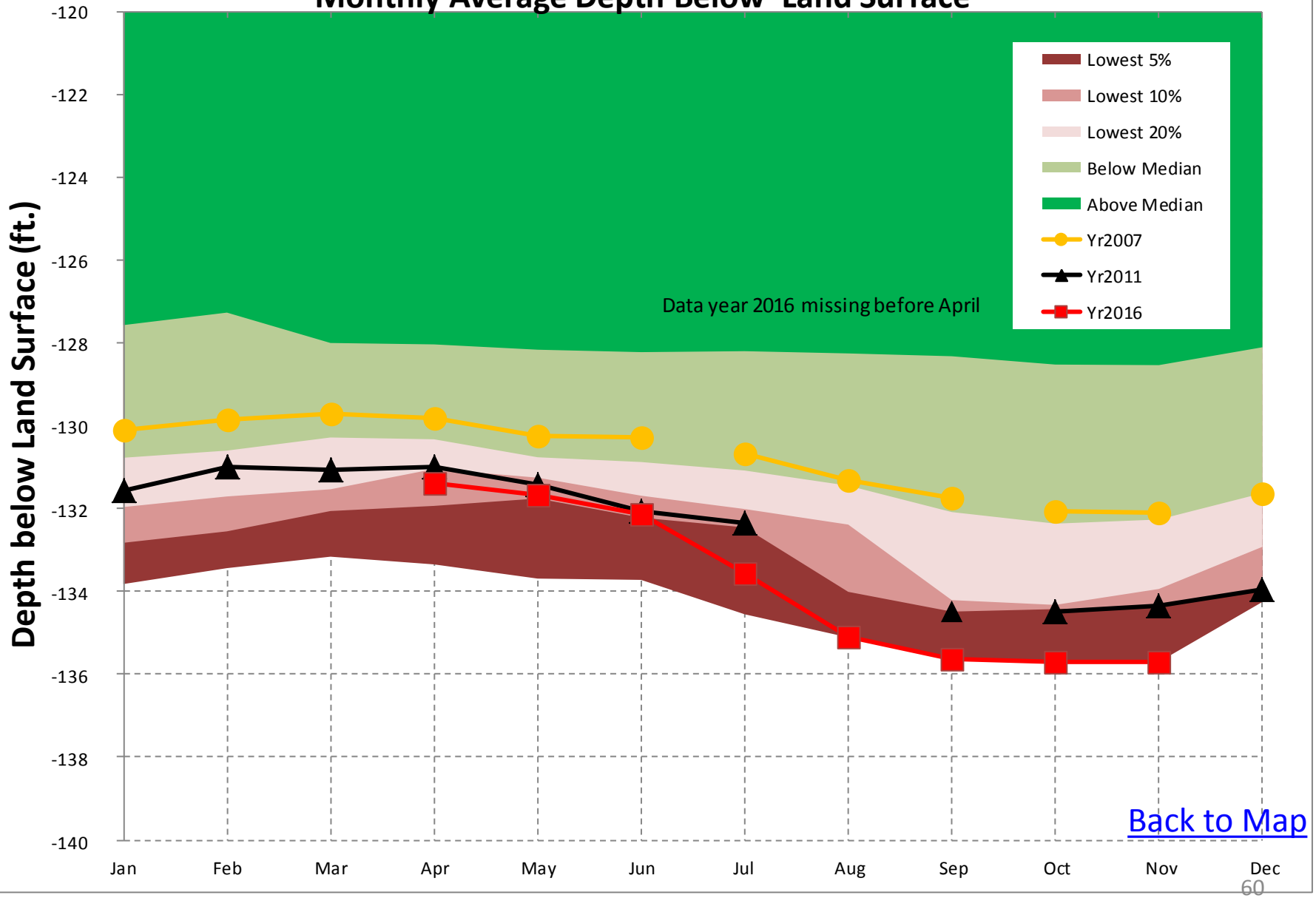
How to Read the Groundwater Level Graphs

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

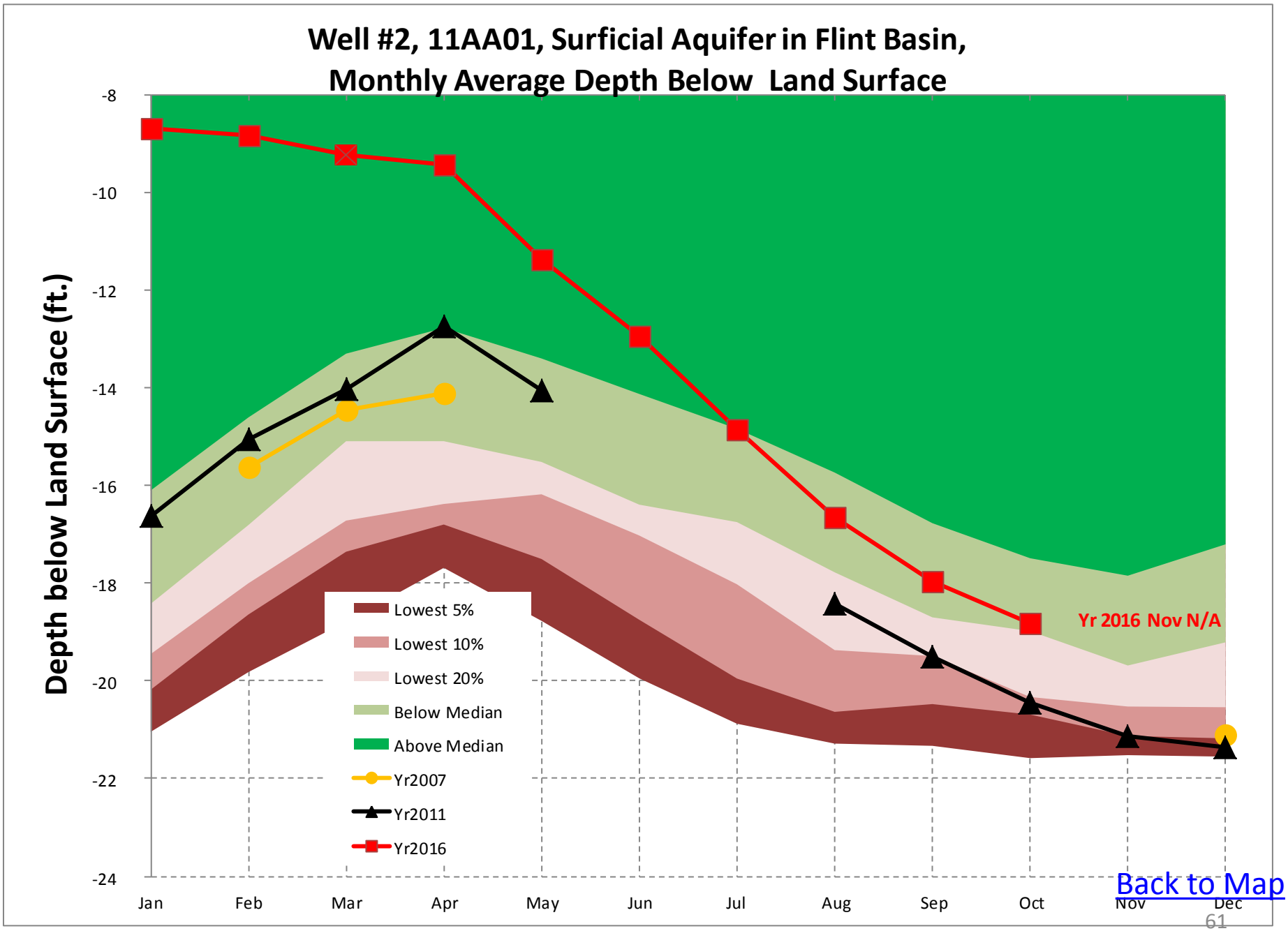
The groundwater level graph for Well #11, USGS 09F520 shows:

- The average monthly groundwater level for November 2016 was 49ft 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 November 2016 about 50% of the time; about 50% of the time in November they have been higher.
- The average monthly groundwater level in November 2011 was 51ft below land surface. The statistical composite of all historical data for this well shows that average monthly groundwater elevation levels for November equal to the historically lowest recorded average elevation for November.
- The average monthly groundwater level in November 2007 was 51ft below land surface. The statistical composite of all historical data for this well shows that average monthly groundwater elevation levels for November higher than to the historically lowest recorded average elevation for November.
- The lowest recorded average monthly groundwater level for November was 51ft below land surface.

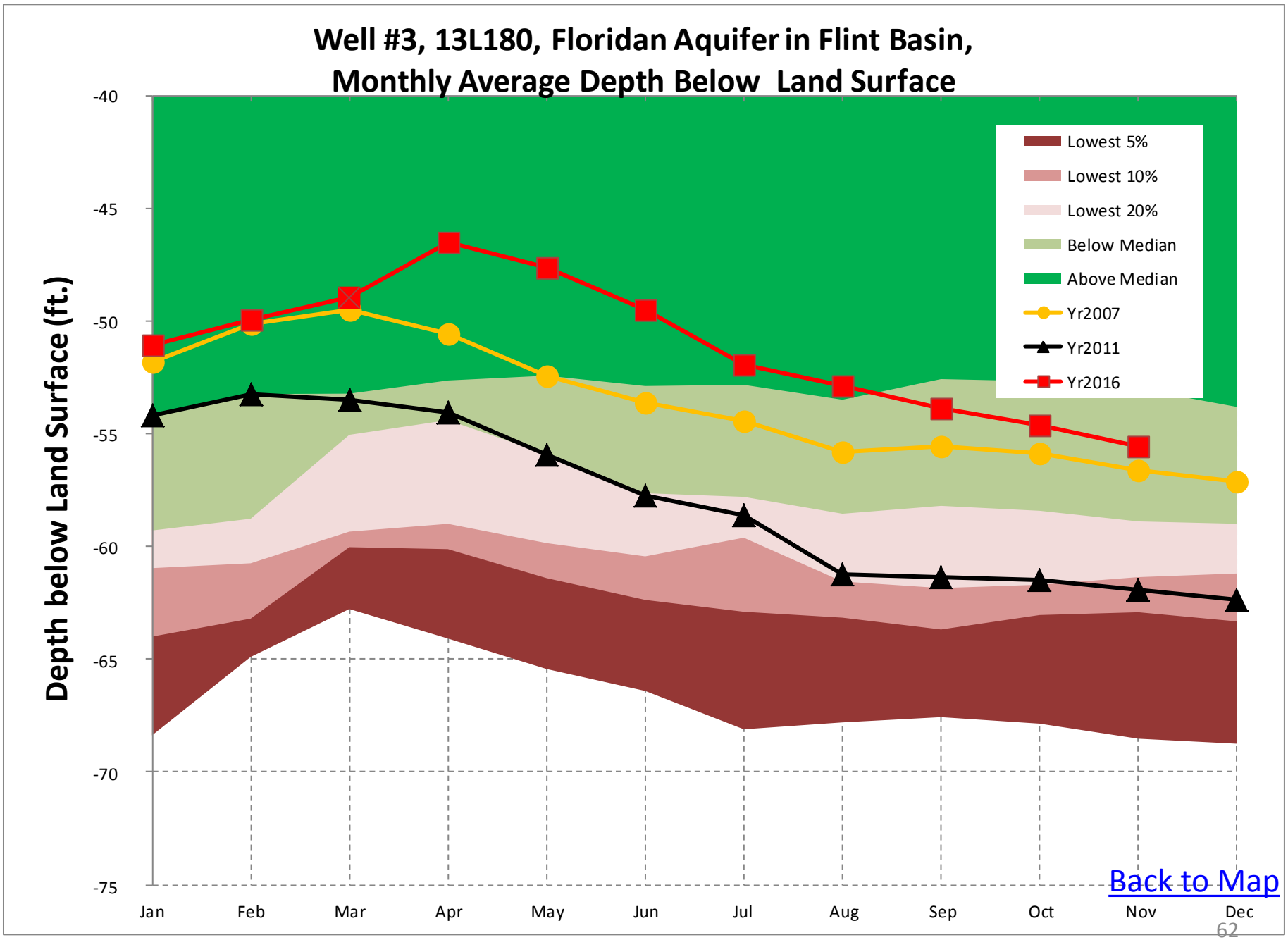
Well #1, 30AA04, Gordon & Dublin Aquifers in Savannah Basin, Monthly Average Depth Below Land Surface



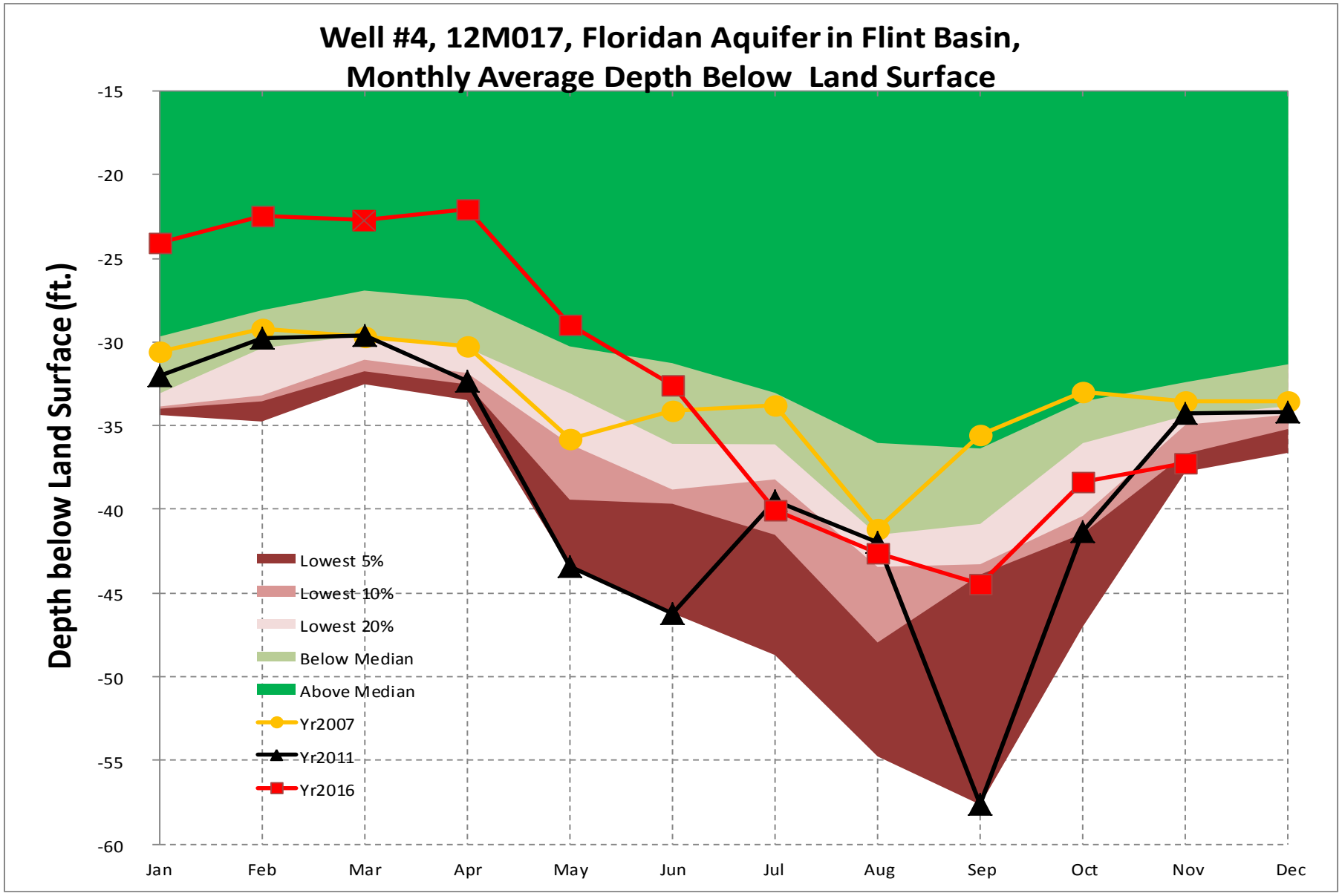
Back to Map


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
Yr2016
Yr 2016 Nov N/A

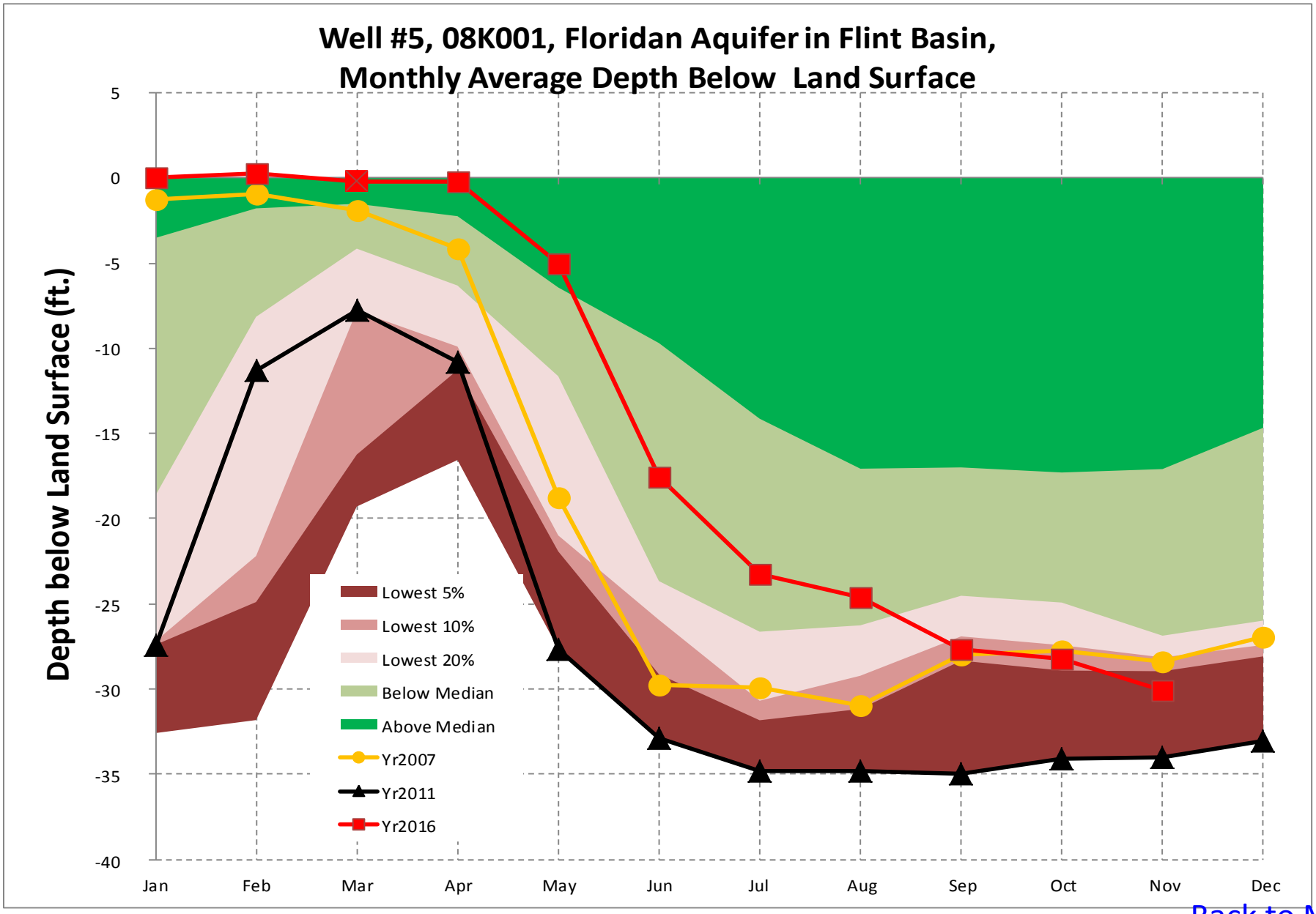
Back to Map


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
Yr2016

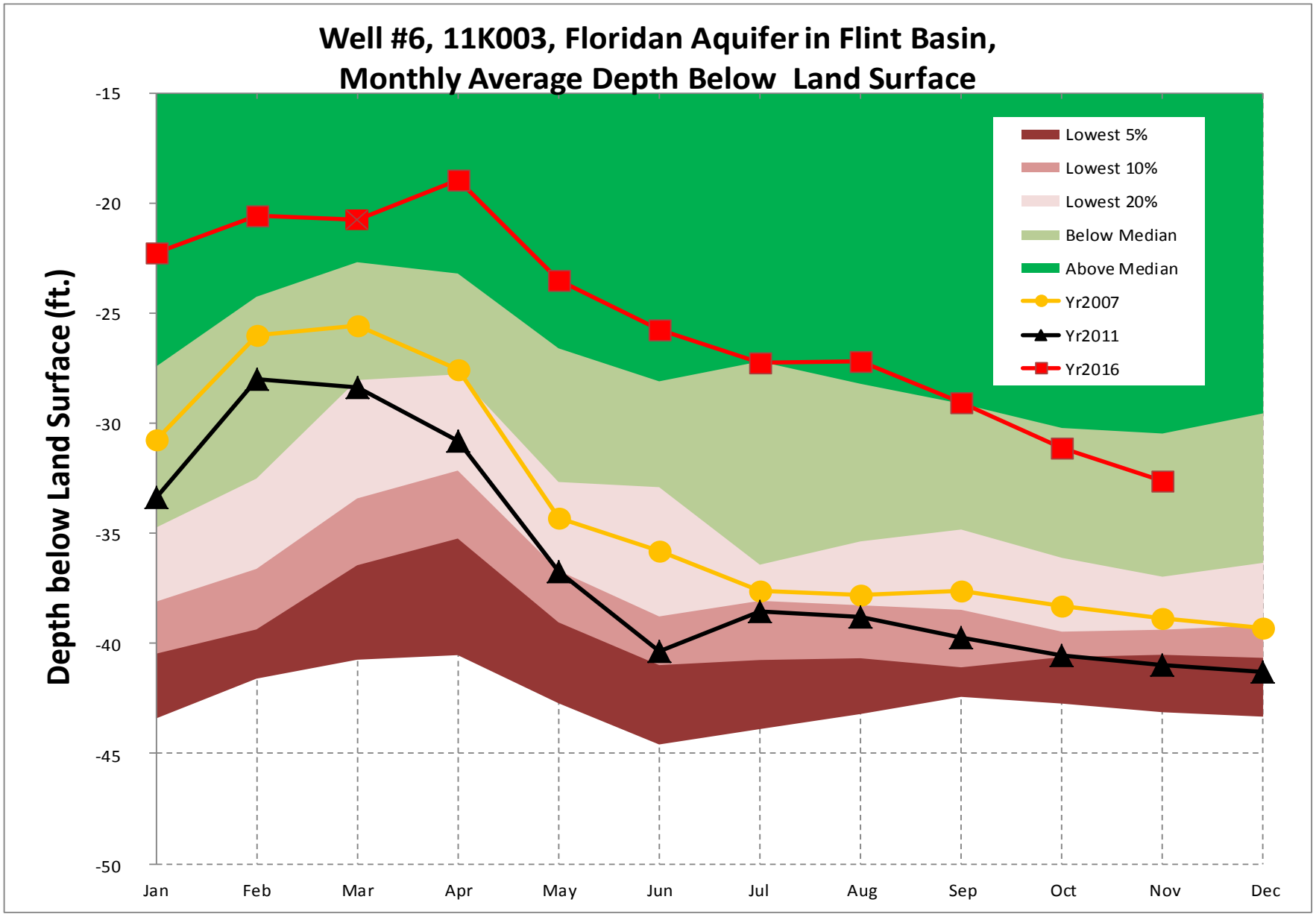
Back to Map


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
Yr2016

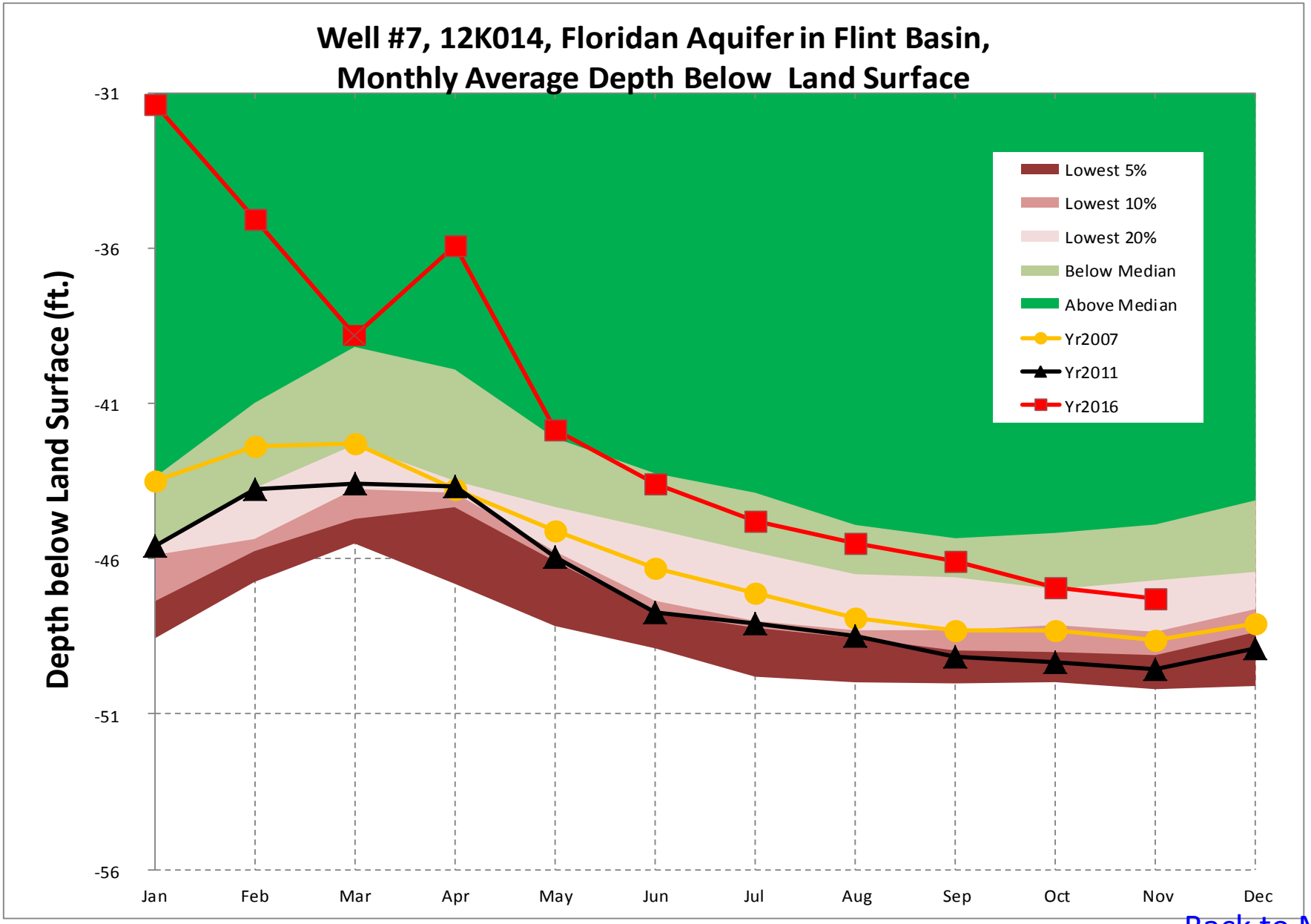
Back to Map


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
Yr2016

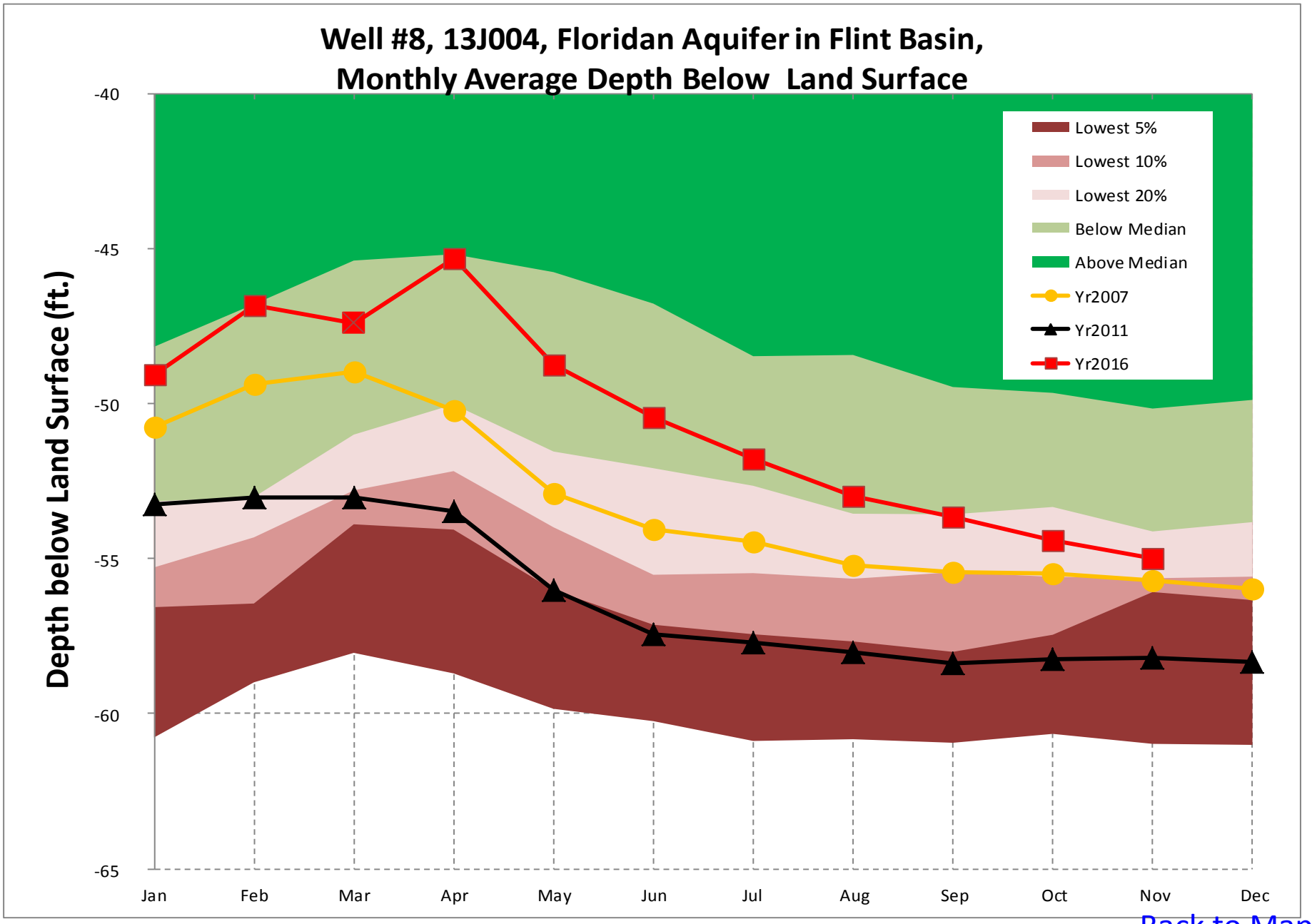
Back to Map


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
Yr2016

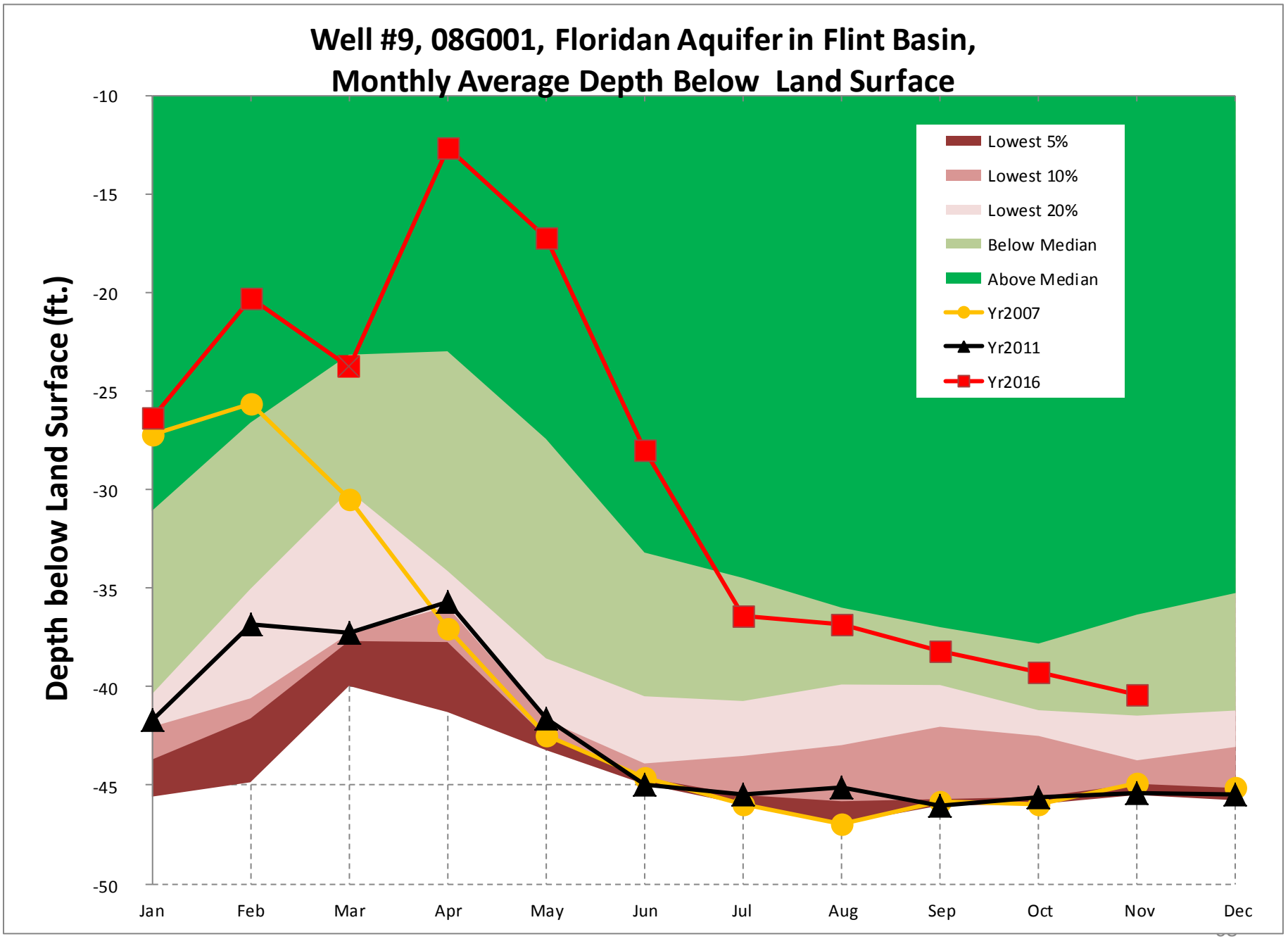
Back to Map

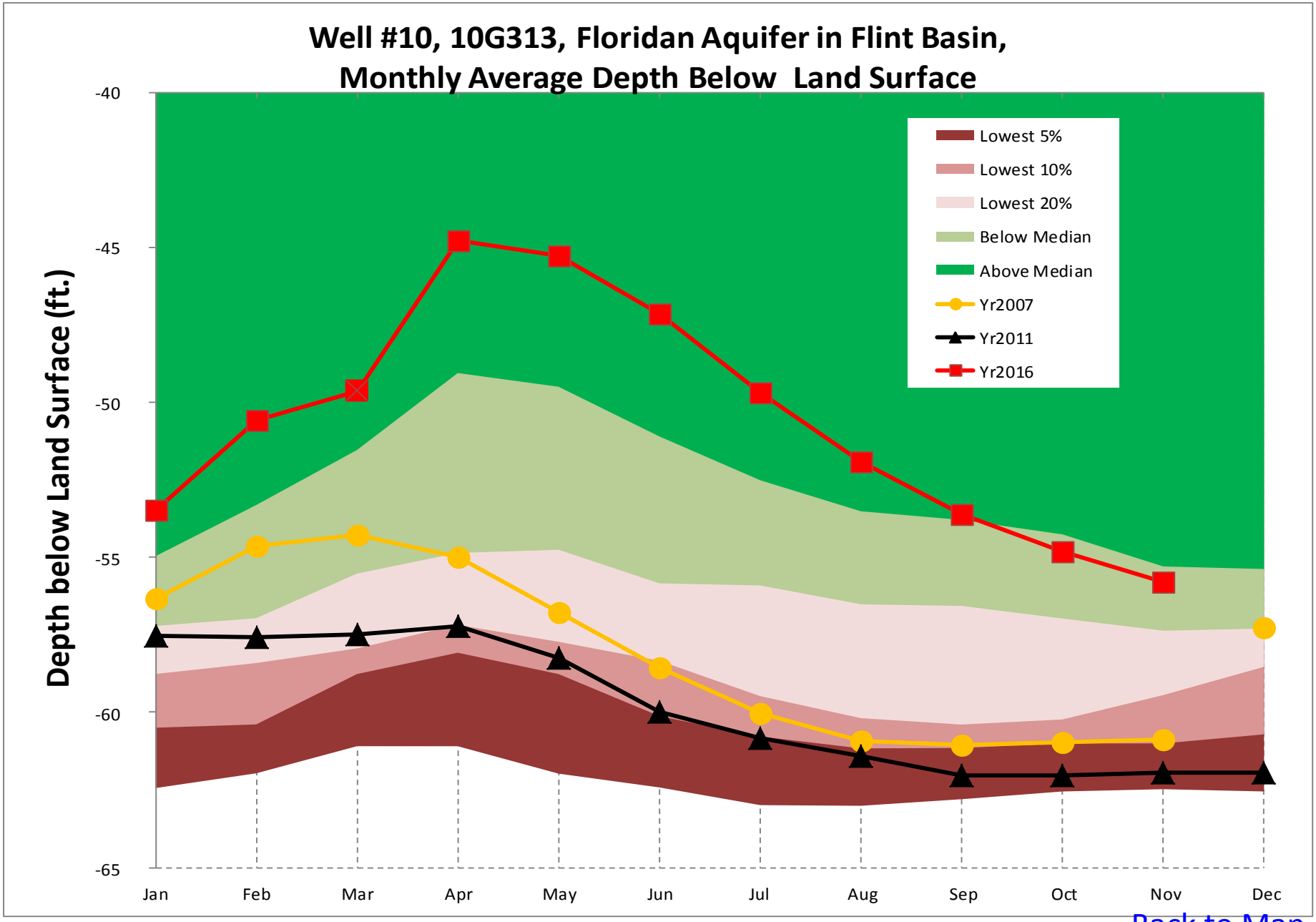

Well #7, 12K014, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-31
-36
-41
-46
-51
-56
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

Back to Map

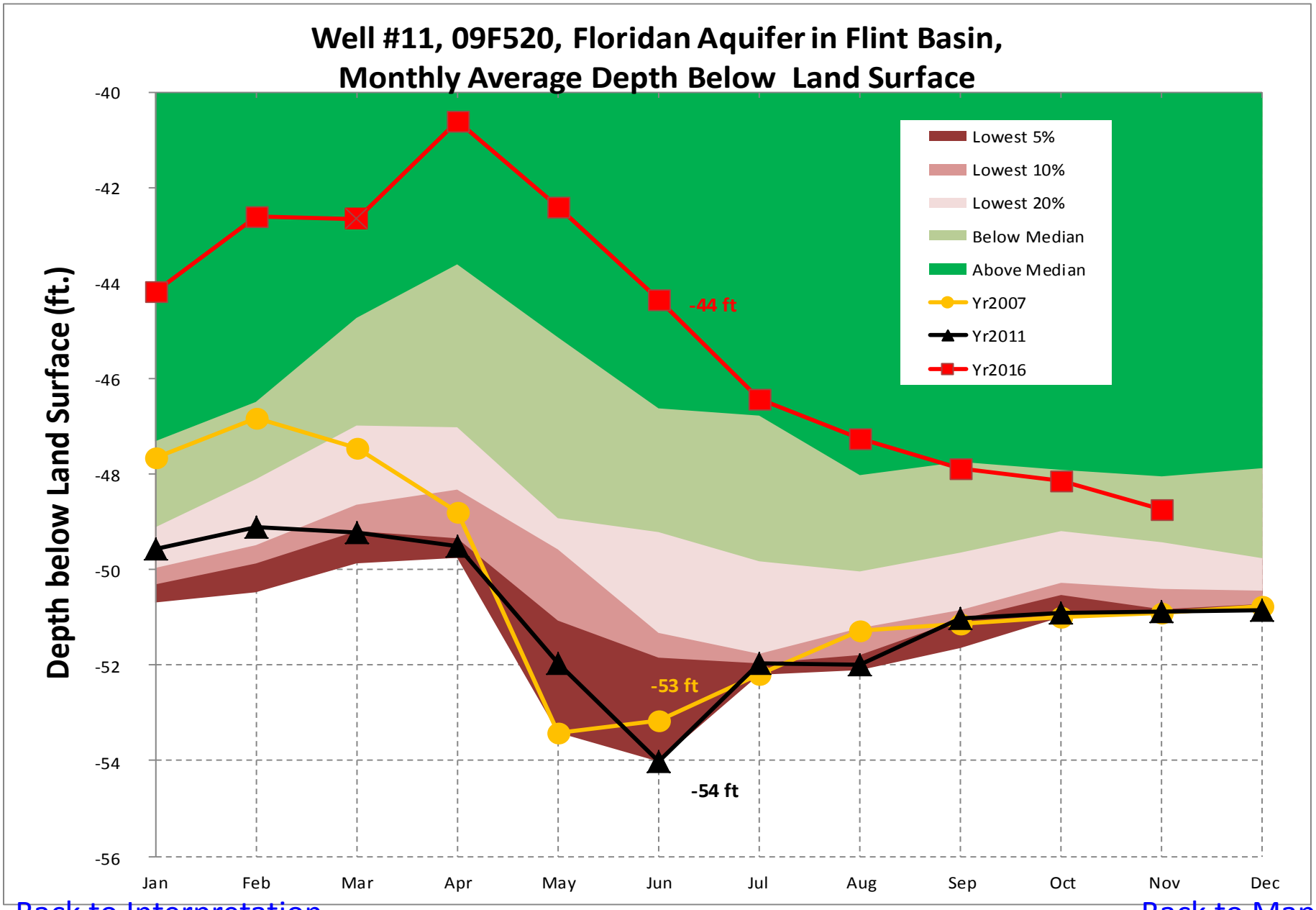

Well #8, 13J004, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-40
-45
-50
-55
-60
-65
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

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
Yr2016

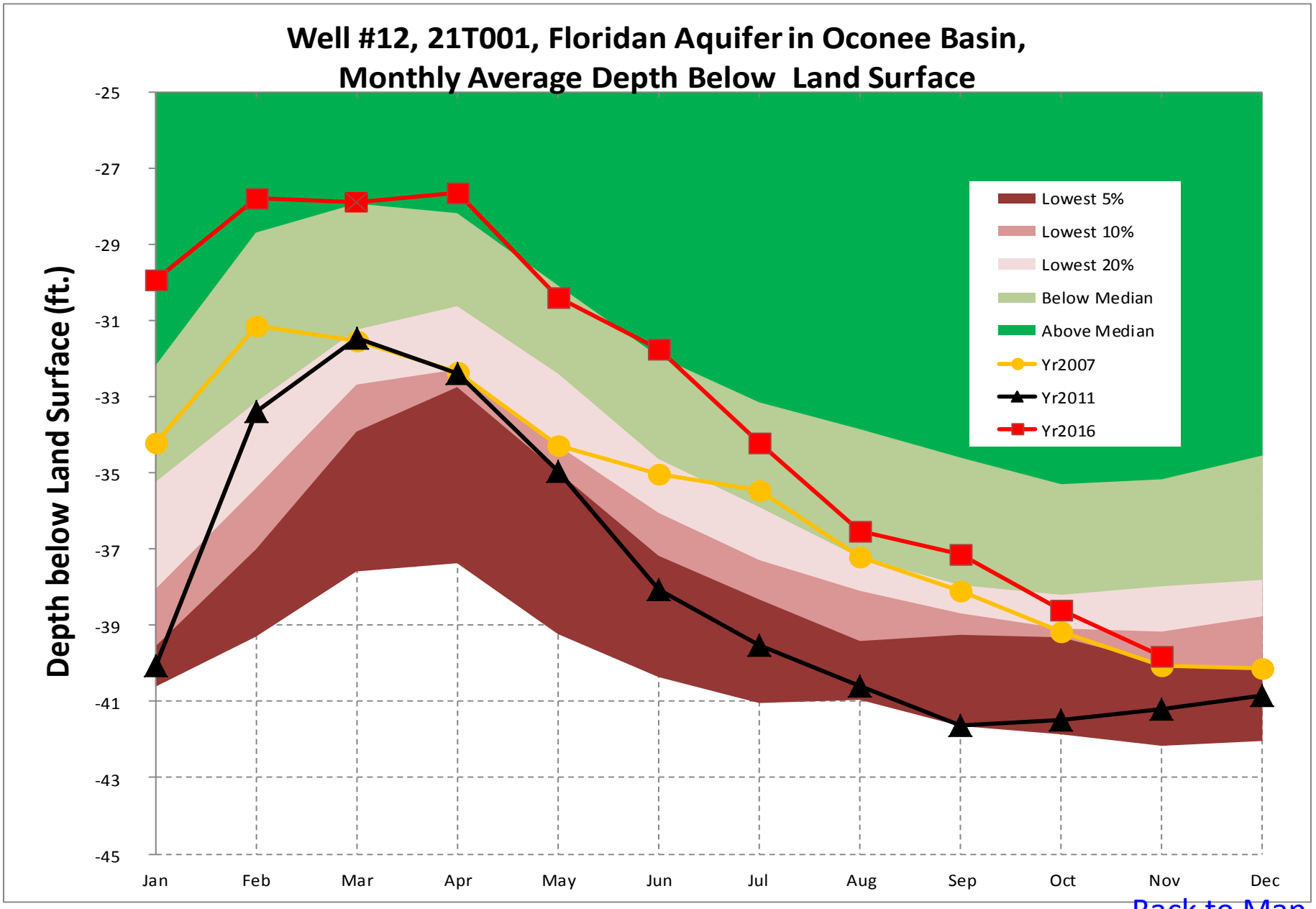

Well #10, 10G313, Floridan Aquifer in Flint Basin,
Monthly Average Depth Below Land Surface
Depth below Land Surface (ft.)
-40
-45
-50
-55
-60
-65
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Lowest 5%
Lowest 10%
Lowest 20%
Below Median
Above Median
Yr2007
Yr2011
Yr2016

Back to Map

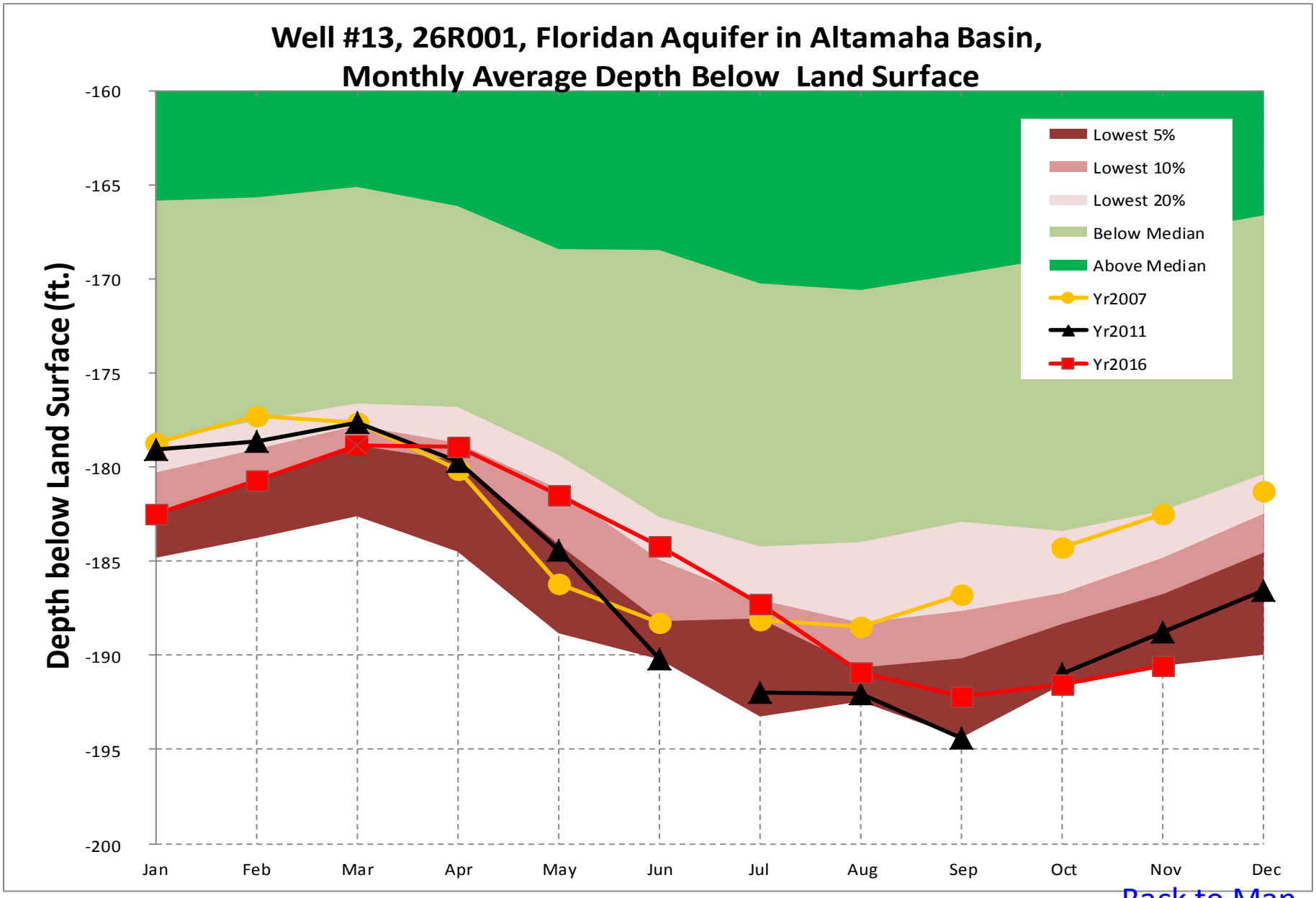


Back to Interpretation

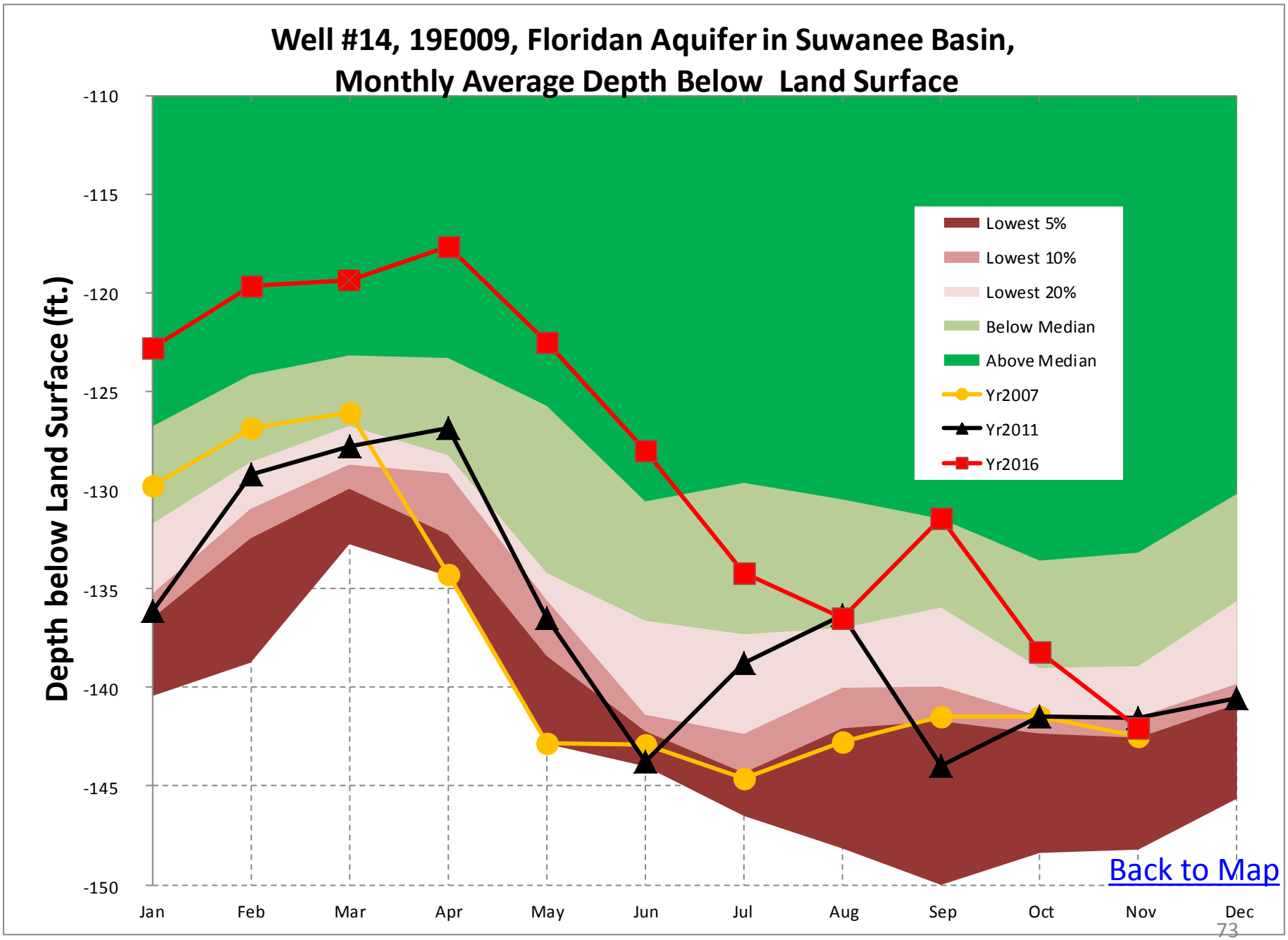
Back to Map


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
Yr2016

Back to Map


Well #13, 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

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
Yr2016

Back to Map

Reservoir Levels

Data Source:
US Army Corps of Engineers

Coosa Basin
1. Carters
2. Allatoona

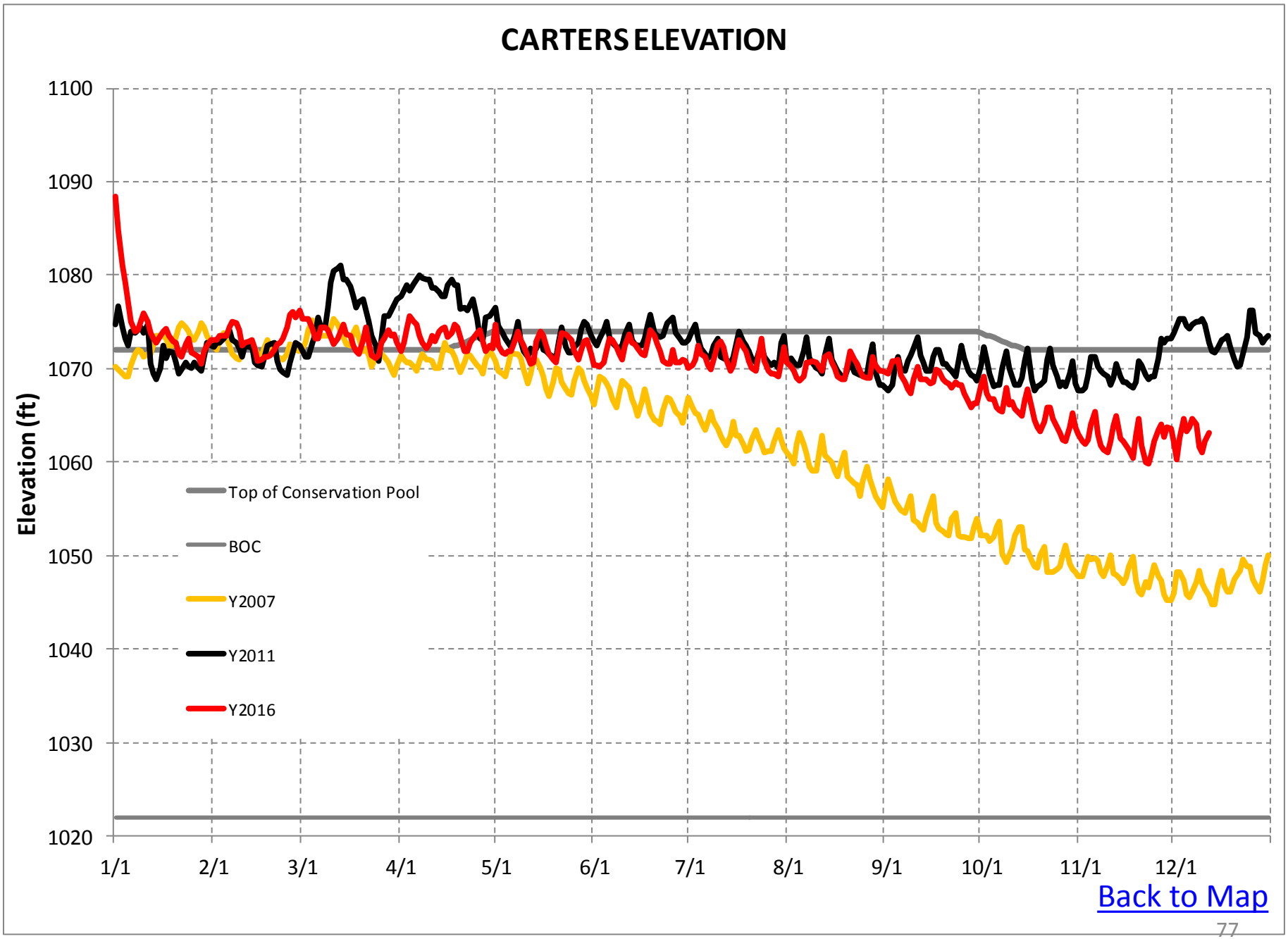
Chattahoochee Basin
3. Lanier
4. West Point
5. W.F. George

Savannah Basin
6. Hartwell
7. Thurmond

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

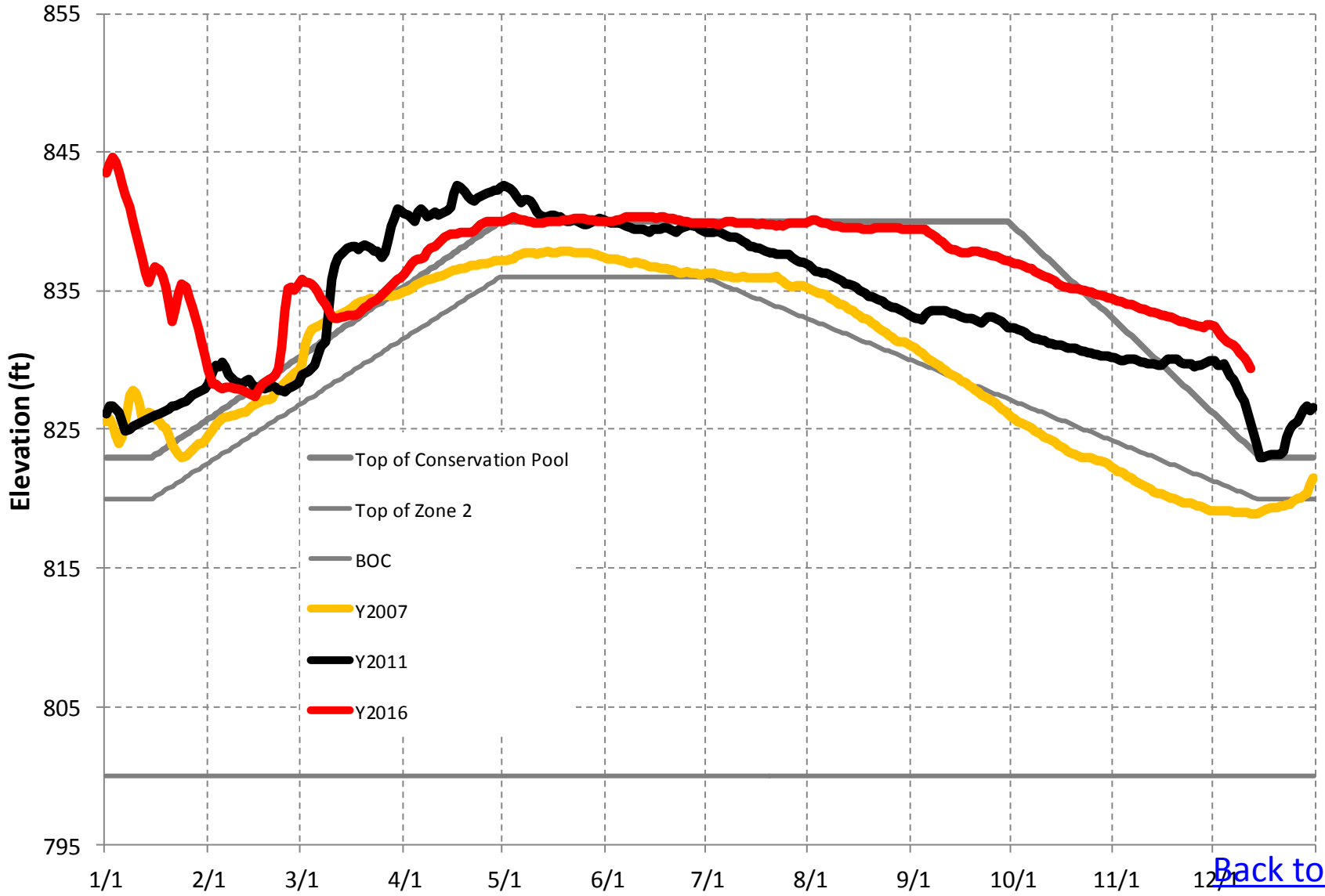
Reservoir Elevation Graphs

- The following graphs show the reservoir elevation curves for January, 2016 through November, 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.

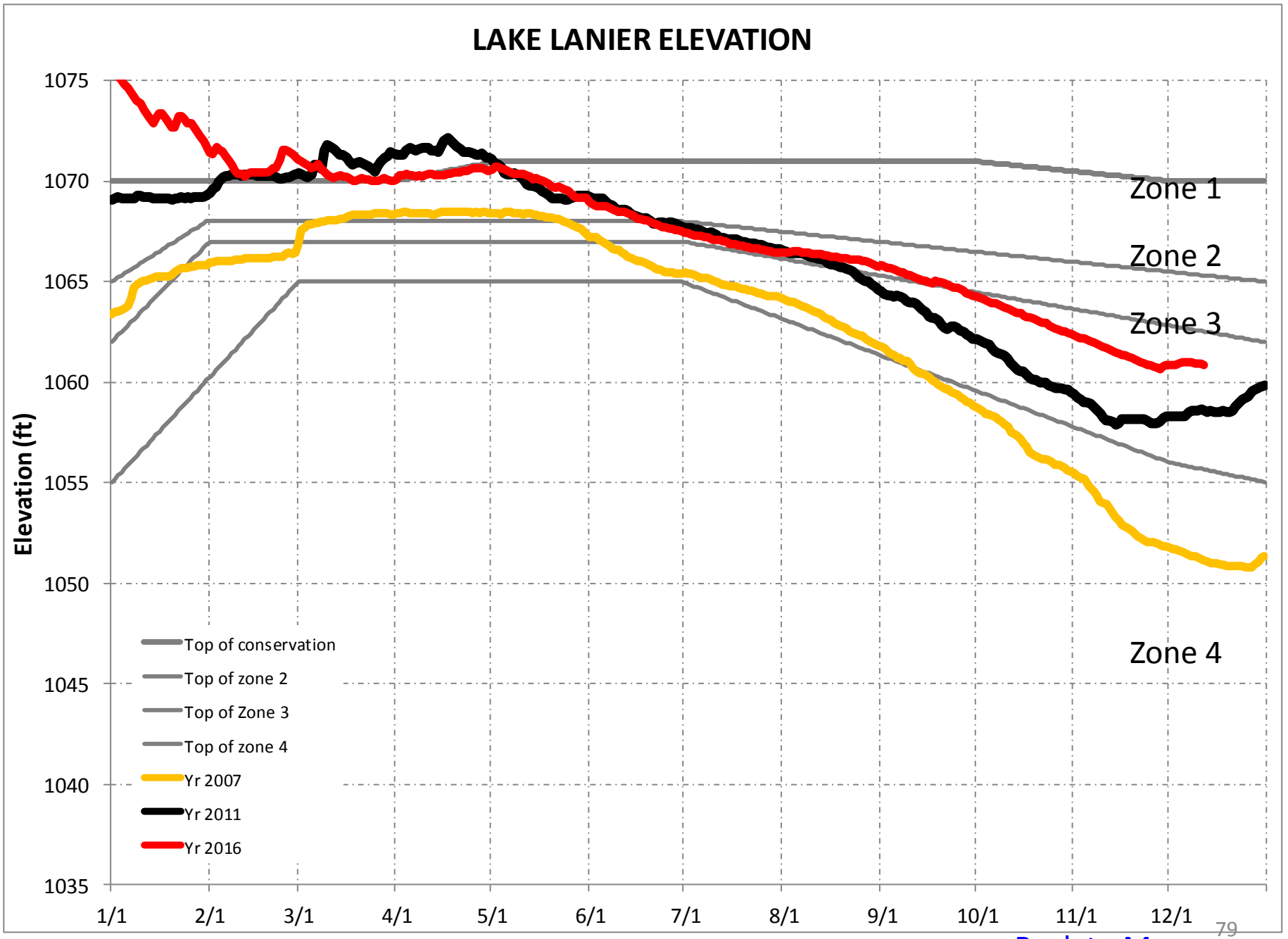

CARTERS ELEVATION
Elevation (ft)
1100
1090
1080
1070
1060
1050
1040
1030
1020
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Top of Conservation Pool
BOC
Y2007
Y2011
Y2016

Back to Map

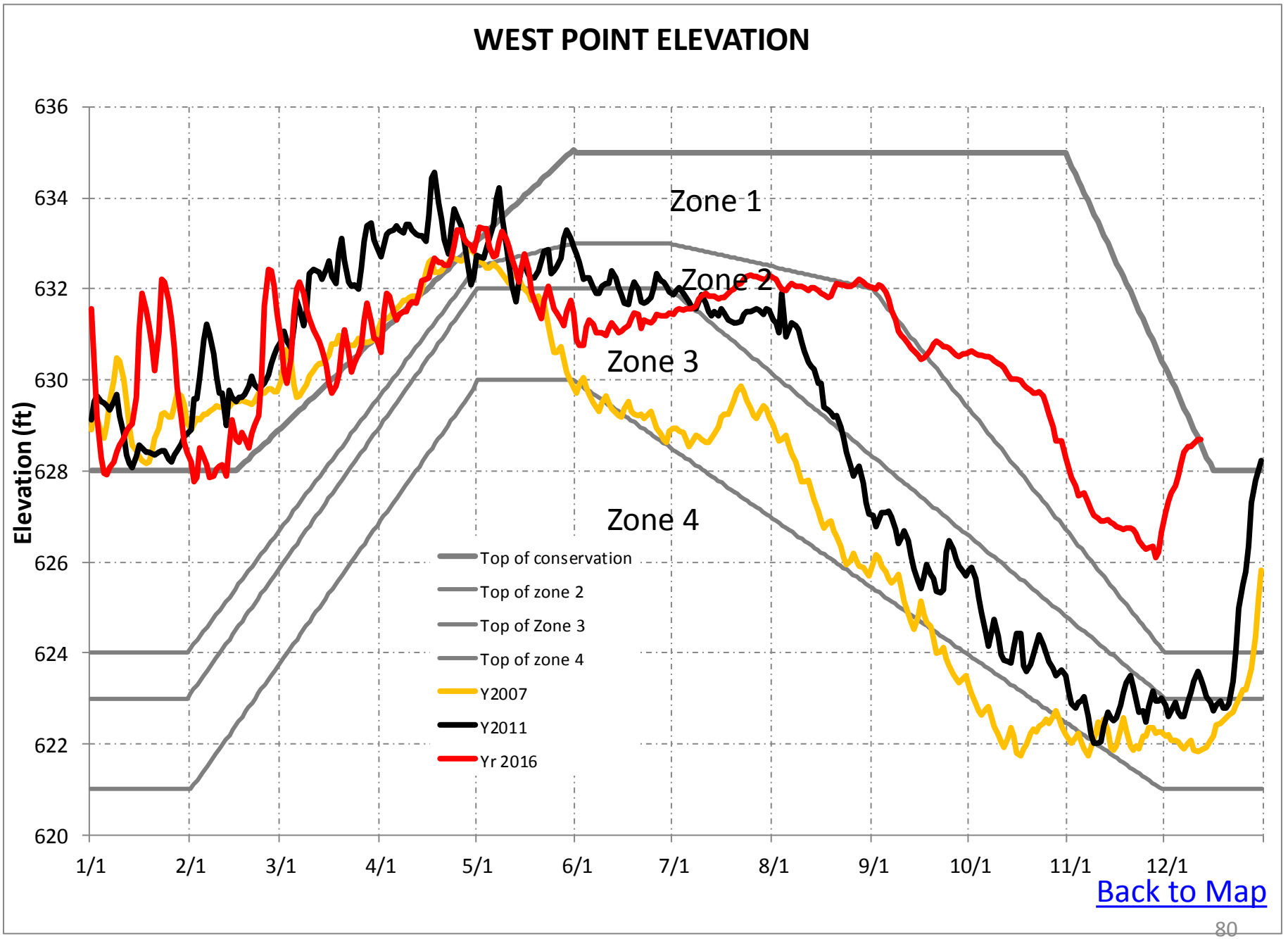
ALLATOONA ELEVATION



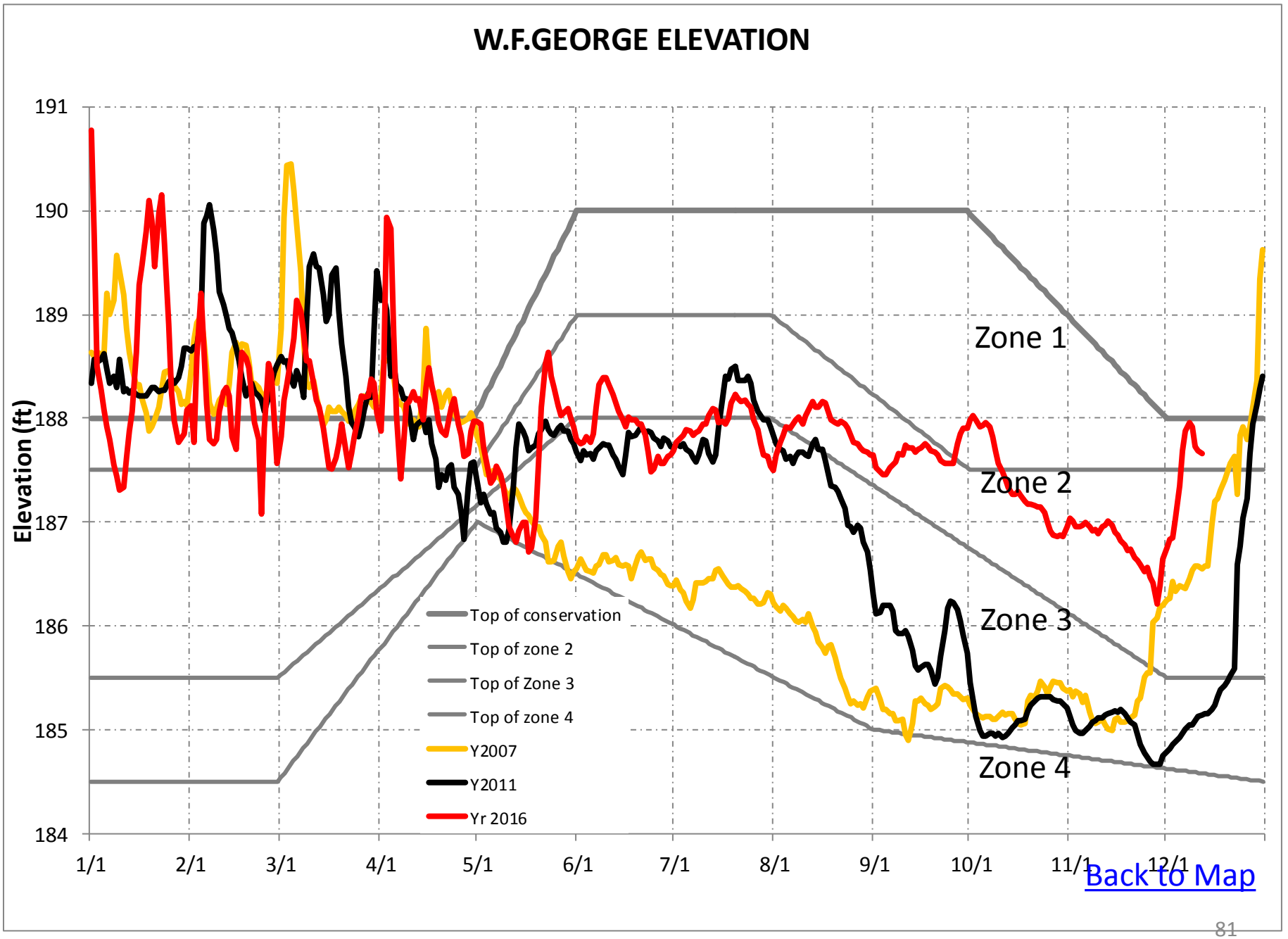
Back to Map


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

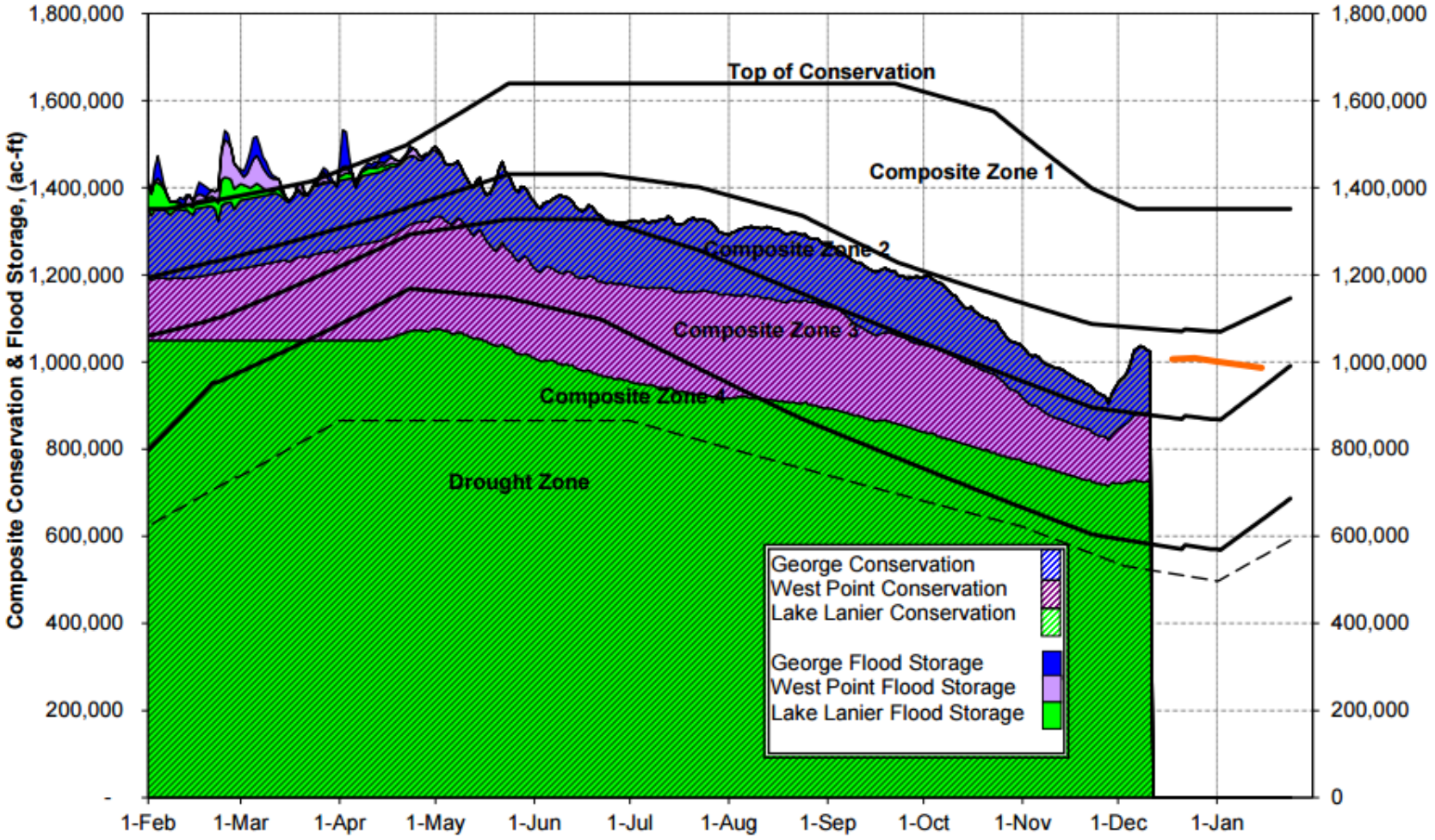

WEST POINT ELEVATION
Elevation (ft)
636
634
632
630
628
626
624
622
620
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Zone 1
Zone 2
Zone 3
Zone 4
Top of conservation
Top of zone 2
Top of Zone 3
Top of zone 4
Y2007
Y2011
Yr 2016

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

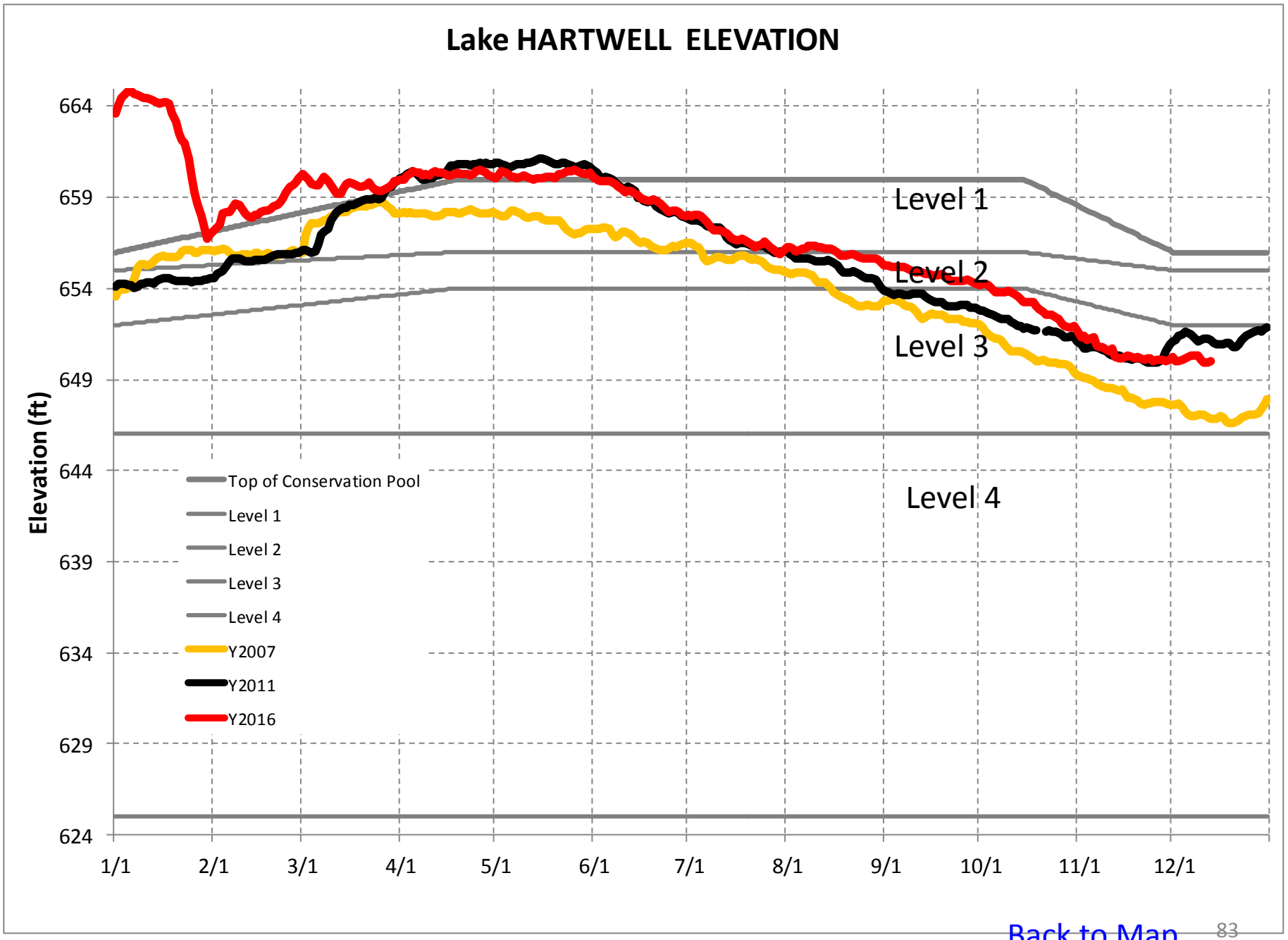
Back to Map

2016 ACF Basin Composite Conservation and Flood Storage



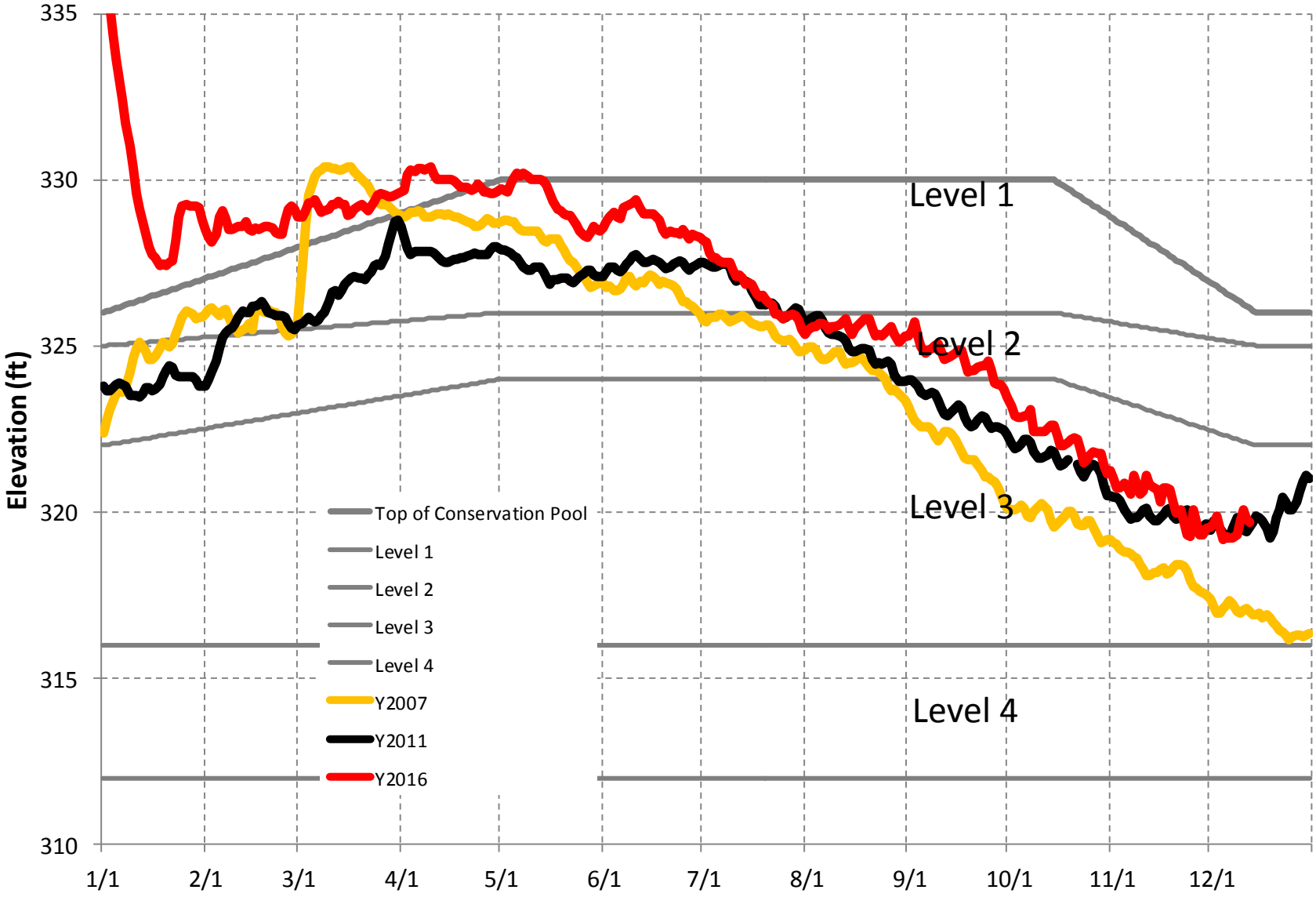
Actual data thru 12-12-2016

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


Lake HARTWELL ELEVATION
Elevation (ft)
664
659
654
649
644
639
634
629
624
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Level 1
Level 2
Level 3
Level 4
Top of Conservation Pool
Level 1
Level 2
Level 3
Level 4
Y2007
Y2011
Y2016

Back to Map

LAKE CLARK HILL (THURMOND) ELEVATION

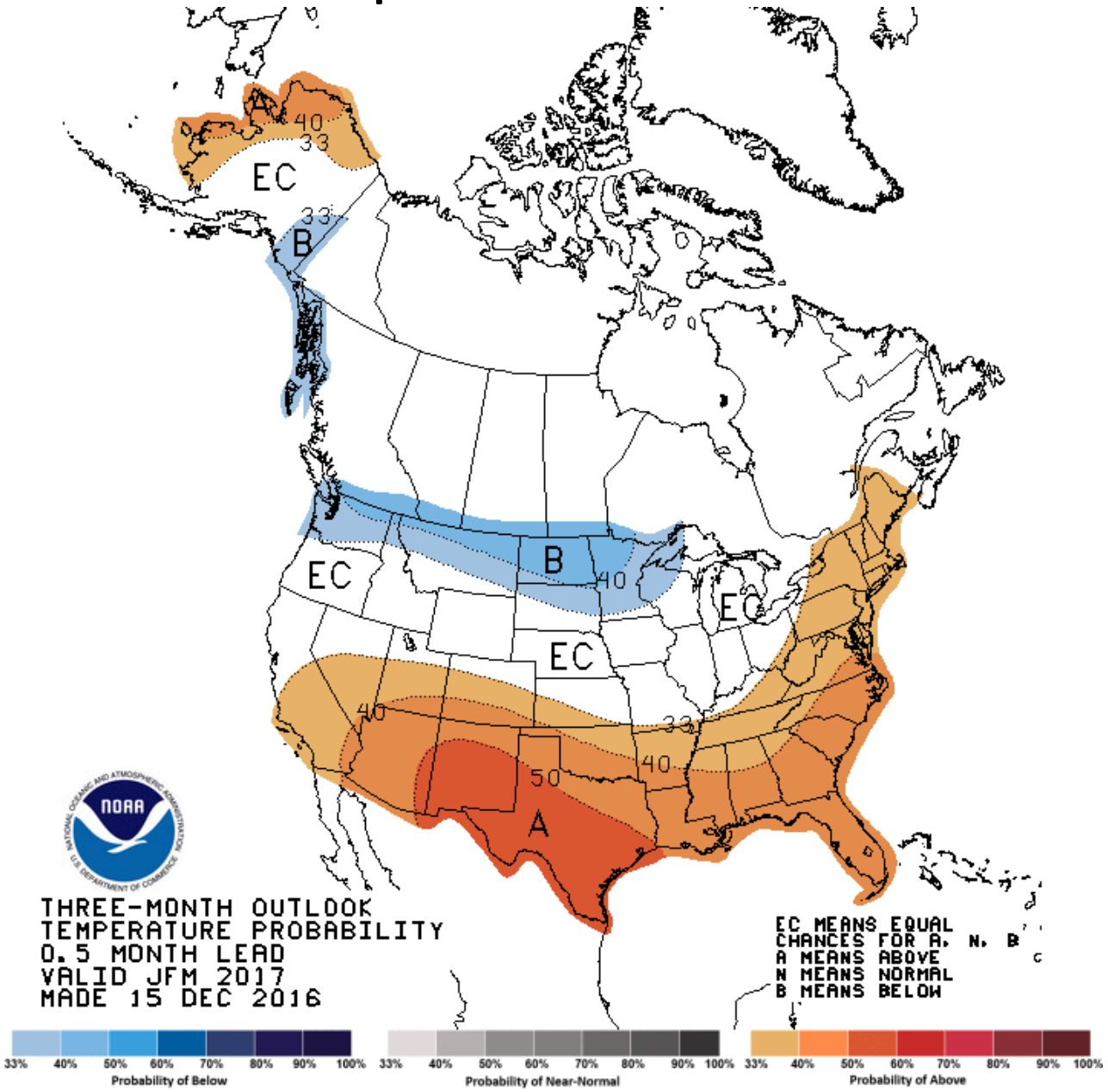


Back to Map

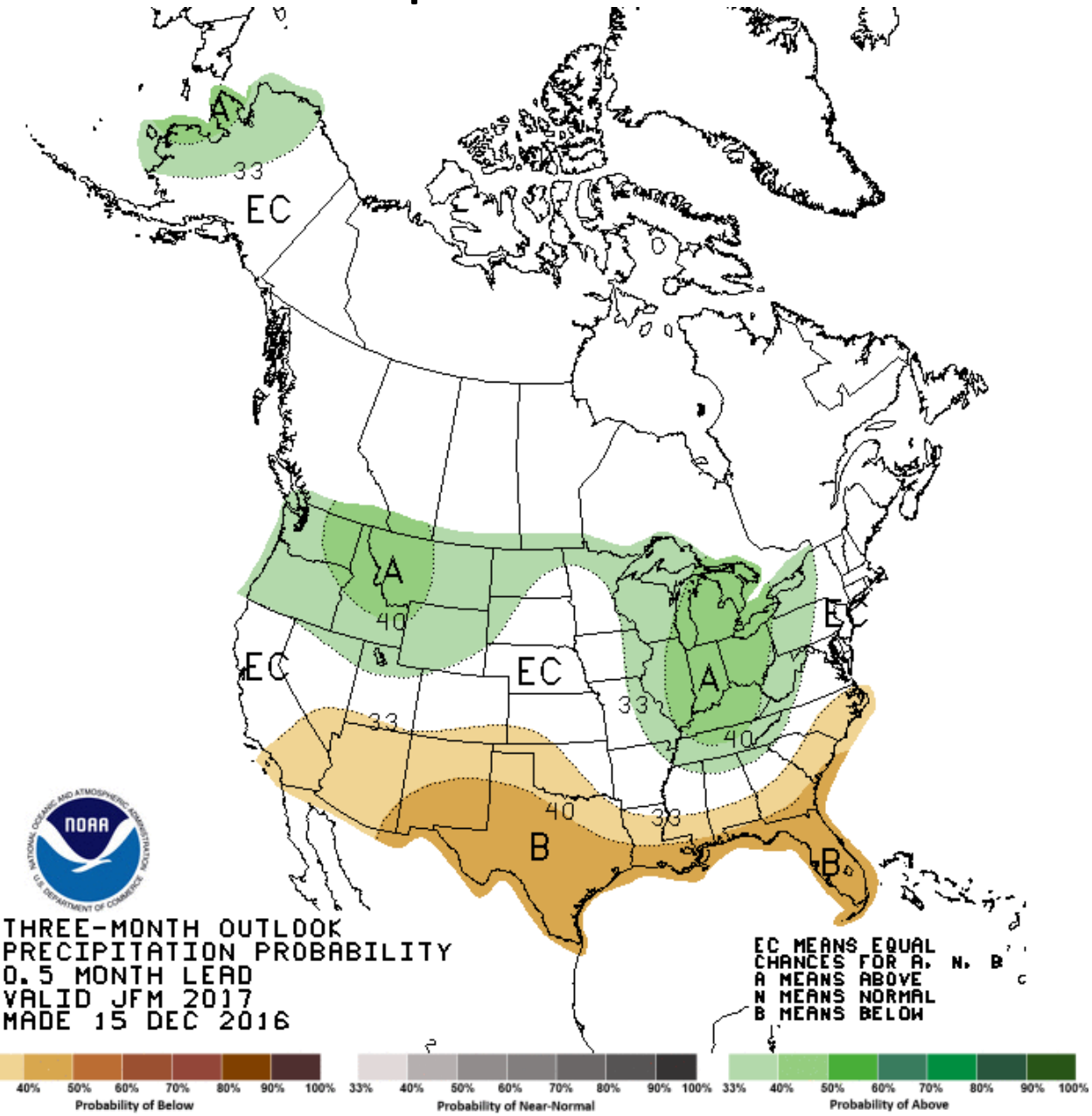
Climate Prediction Center 3-month Temperature and Precipitation Probability Outlook and Seasonal Drought Outlook

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

Temperature Outlook



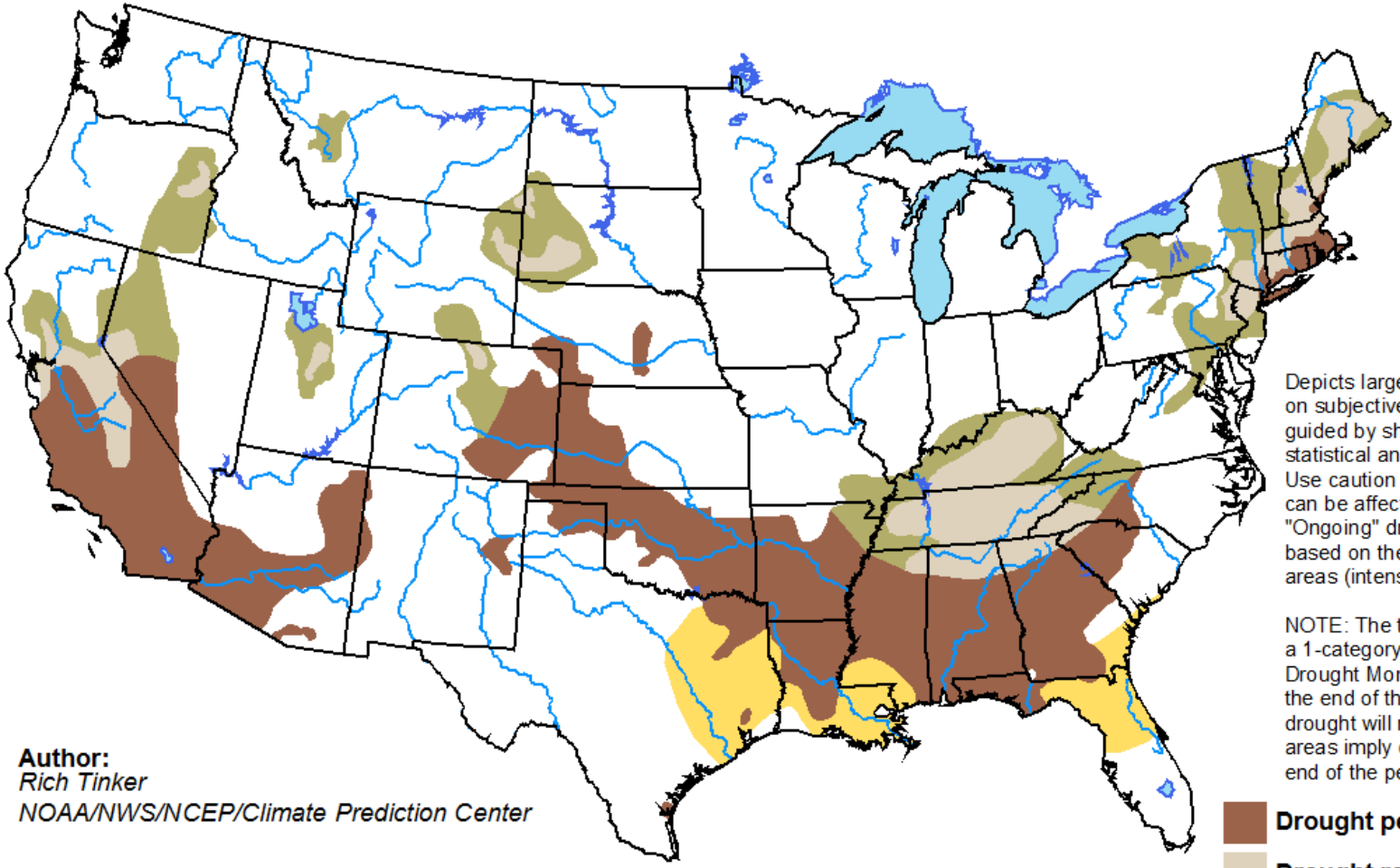
Precipitation Outlook



U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for December 15 - March 31, 2017
Released December 15, 2016



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

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

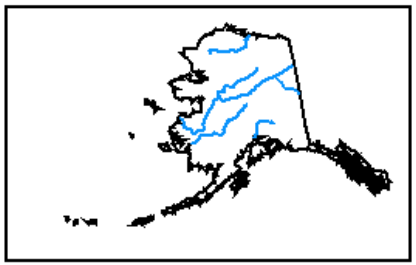
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

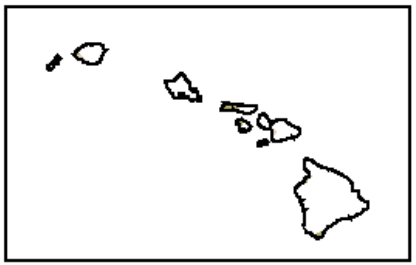
Drought persists

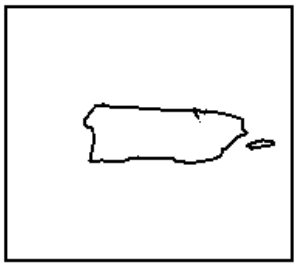
Drought remains but improves

Drought removal likely

Drought development likely







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