Capital District Data

Spring 2017 Volume 40, Number 1

In this Issue of Capital District Data

A look at the agricultural economy of the Greater Capital Region Foodshed

As part of a project with Capital Roots, examine the agricultural economy of the 11-County Foodshed

An update on the Region's drought conditions

A follow up on the drought conditions from 2016. How did March's blizzard impact conditions?

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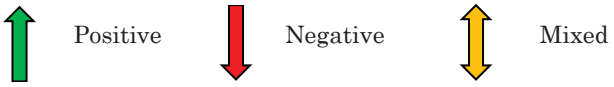
Data Overview



In 2012, the 11 county foodshed produced $546 million in agriculture sales. Washington and Montgomery counties accounted for the most sales with $139 and $86 million.

Dairy is a staple commodity for both the State and the Foodshed. In 2012, the Foodshed sold $249 million in milk, 10.3% of the State's total.

Drought conditions continue to improve after peaking in November. By April, it is likely that dry conditions will be removed from the four county region.

Local aquifers have recorded improvements to their water levels, but are still generally below their historical medians. The snow from the March blizzard is likely to recharge water levels.

The 11 county foodshed accounts for 12.5% of the State's land area, and accounts for 11.8% of the State's farm land.

Despite the 11 county foodshed's $546 million in sales in 2012, none of the individual counties rank in the top 10. Most of the State's production is out near Buffalo.

Despite above average precipitation in January and February, the Region is still in a precipitation deficit. Dating to January 2016, the Region is roughly 2.8 inches low on precipitation. This does not account for the March blizzard.

Capital District Regional Planning Commission
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50 Years of Service to Albany, Rensselaer, Saratoga, & Schenectady Counties

Agriculture's Impact on the Regional Economy

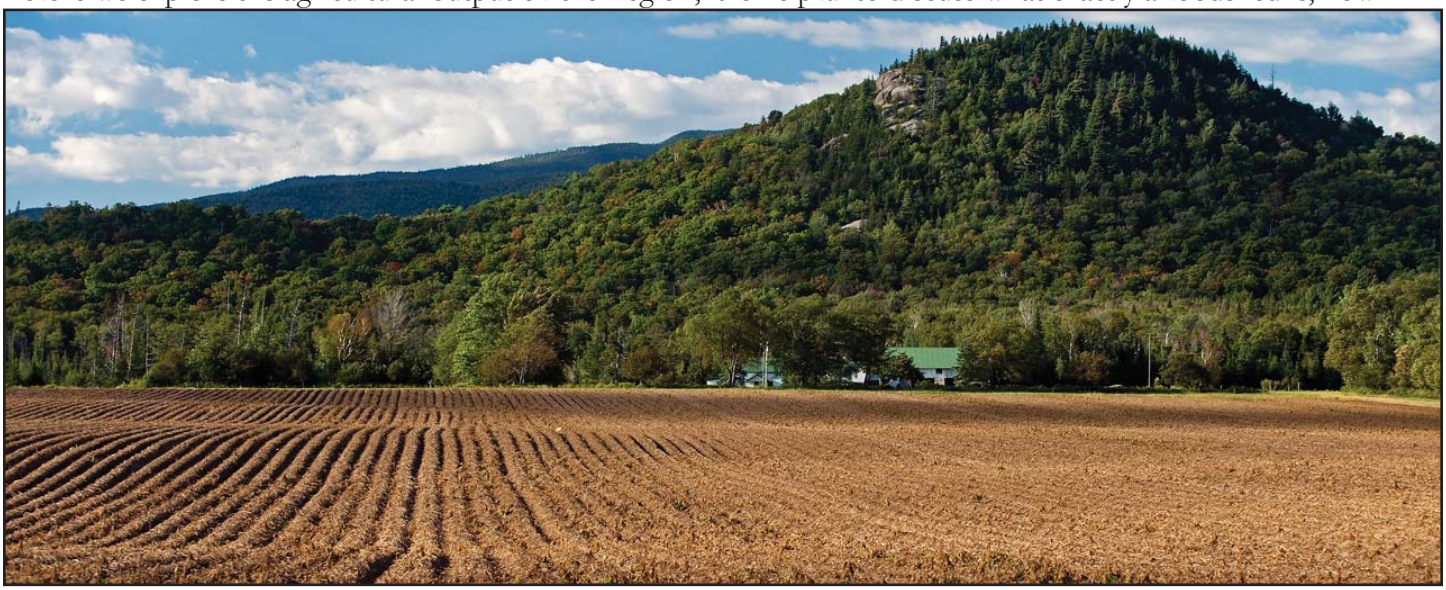
New York's agricultural output is not the first thing that most people think of when they're asked about the State's economy, but New York farms are a significant economic resource. According to the US Department of Agriculture (USDA), in 2015 New York State was responsible for over $5.3 billion in commodity sales, and ranked third in the nation for dairy sales with over $2.5 billion. In a State with such a strong agriculture sector, *Capital Roots* has asked if anything can be done to better connect the residents of the foodshed with healthy and affordable food. Working with regional partners, including the *Capital District Regional Planning Commission*, *Capital Root's* project, *Greater Capital Region Food System Assessment,* is a two year project to conduct a comprehensive regional food system assessment based on an eleven county region (Albany, Columbia, Greene, Fulton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, and Washington). The project's goals are to identify areas of need and opportunities for growth so that food security can be improved for the most vulnerable populations.

Before an examination of the foodshed can be completed, a thorough understanding of the foodshed's production is a logical starting point for better understanding the fundaments of the foodshed. The logical place to begin any assessment is with a review of available data for the Region. Data was assembled from the New York State Department of Agriculture and Markets as well as the USDA's 5-year Census of Agriculture. This data is intended to establish a baseline for the *Greater Capital Region Food System Assessment* and examine the following topics:

- Farms in the Region;
- Lands in the Region's farms;
- Total value of commodities sold;
- A comparison between the Region's share of New York State's total sales;
- An overview of how the Region's individual counties compare to the rest of the State's counties

By better understanding the agricultural output of the Region, we can establish a baseline for the foodshed. With that baseline established, further research can be conducted on the distribution of the Region's output, as well as its consumption. Eventually, the *Food System Assessment* will take all of this research and will propose ways to better connect low-income households with affordable, healthy, food.

Before we explore the agricultural output of the Region, it is helpful to discuss what exactly a foodshed is, how



The Greater Capital Region Food System Assessment will attempt to better understand how agricultural output in the region can be connected to low-income households. Agriculture is a large percentage of New York's total economy, with milk production being the top agriculture product in the Capital Region.

Photo Source: Empire State Development: http://empirestatedevelopment.tumblr.com/post/103478142323/what-new-york-state-can-do-for-you-new-farmers

Capital Roots determined the 11 county region, and why a project such as the *Greater Capital Region Food System Assessment* is so important. According to the Foodshed Alliance, a "foodshed is a geographic location that produces the food for a particular population. The term describes a region where food flows from the area that it is produced to the place where it is consumed, including the land it grows on, the route it travels, the markets it passes through, and the tables it ends up on." There are very few "official" foodsheds, and there is not a definitive method for determining the extent of a foodshed. Foodsheds can be measured around a single municipality, or they can be regionally focused. *Capital Roots* selected the 11 county region in an attempt to fully encompass the Hudson Valley. To many, the Hudson Valley ends north of Dutchess and Ulster counties. *Capital Roots* chose the 11 counties so that the "upper Hudson Valley" could be tied in with the more well known "lower Hudson Valley."

The ultimate goal of the *Greater Capital Region Food System Assessment* is to address issues of food insecurity with locally produced food. The USDA defines food insecurity as "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways." According to a Siena College report[1], almost 12% of the Capital Region's households were food insecure in 2015. But that can hide the fact that food insecurity is not evenly distributed. According to the same report, 26.1% and 22.4% of African Americans and Latinos suffered from food insecurity respectively. These populations tend to live in urbanized areas that struggle to secure access to quality foods for their poorer citizens. By better understanding the Region's agricultural output and consumption, it may be easier to devise strategies to connect struggling households with quality food.

Regional Output

According to the 2012 Census of Agriculture, the 11 county region is home to 4,878 farms. The largest concentration of the farms is in Washington County with 851 (17.4%) of the Region's farms. Farms are equally distributed across Montgomery; Saratoga; Schoharie; Rensselaer; Albany; and Columbia counties. The counties with the fewest farms, Greene; Fulton; Schenectady; and Warren, combine for 770 (15.8%) of the Region's farms. In terms of farmland, the distribution is less equal. Washington County alone accounts for 189,391 acres of farmland, more than 22.3% of all the farmland in the Region. On the opposite end of the spectrum, Warren County's farms only accounted for 1.1% of the Region's total farmland.

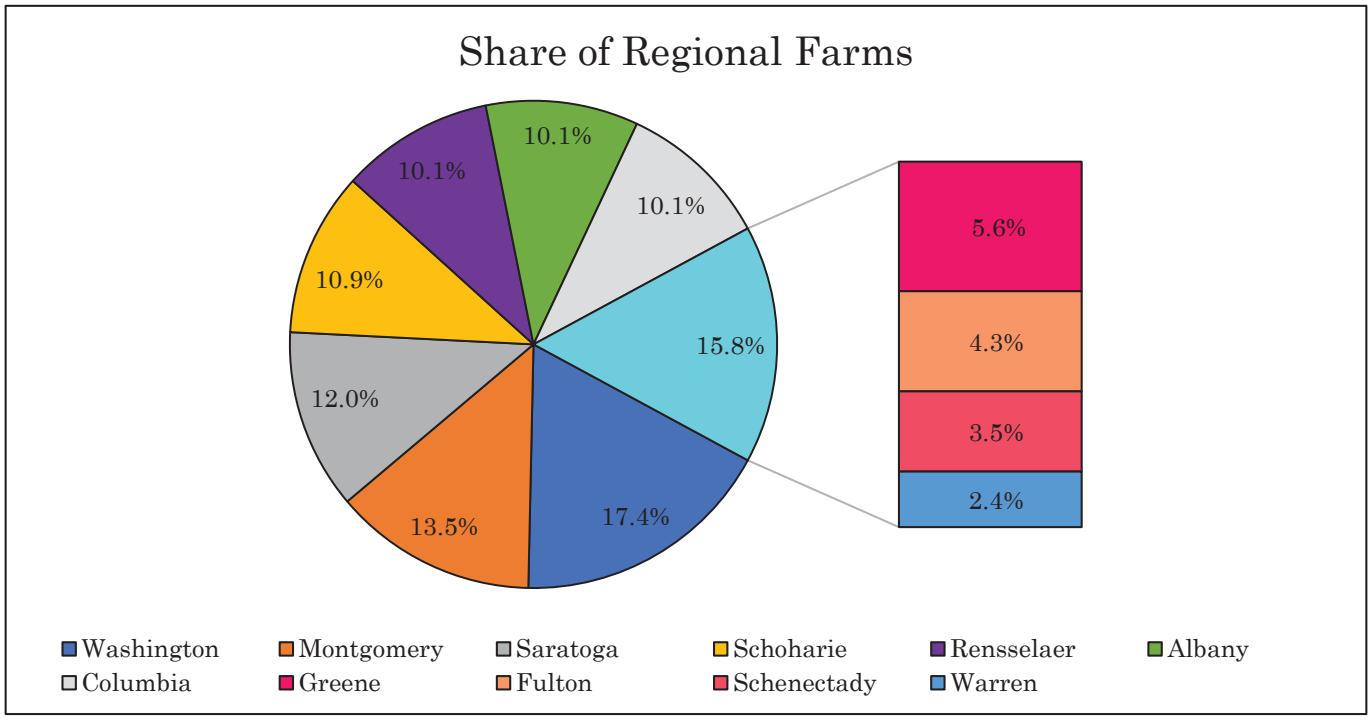
In terms of value generated, the Region in 2012 was responsible for roughly $546.8 million in sales; $194.4 million in sales from crops and $352.4 million in sales from livestock. Of the 11 counties in the Region, only 10 recorded sales figures; Warren County generated such a low volume of sales that their data was suppressed for privacy reasons. Washington County led the Region with $139.1 million in total sales, led in large part by $112.2 million in livestock sales- accounting for 80.6% of the County's total sales. Washington County, alone, accounts for 25.4% of the Region's total sales, while Schoharie, Greene, Fulton, and Schenectady counties combine for just 13.8% of the Region's total sales. Of the Region's livestock sales, $177.5 million was generated between Washington and Montgomery counties, representing more than half of the Region's $352.4 million in sales. Total livestock sales generated 64.5% of the Region's total sales in 2012.

In 2012, the Region was responsible for roughly $546.8 million in sales; $194.4 million from crops and $352.4 million from livestock.

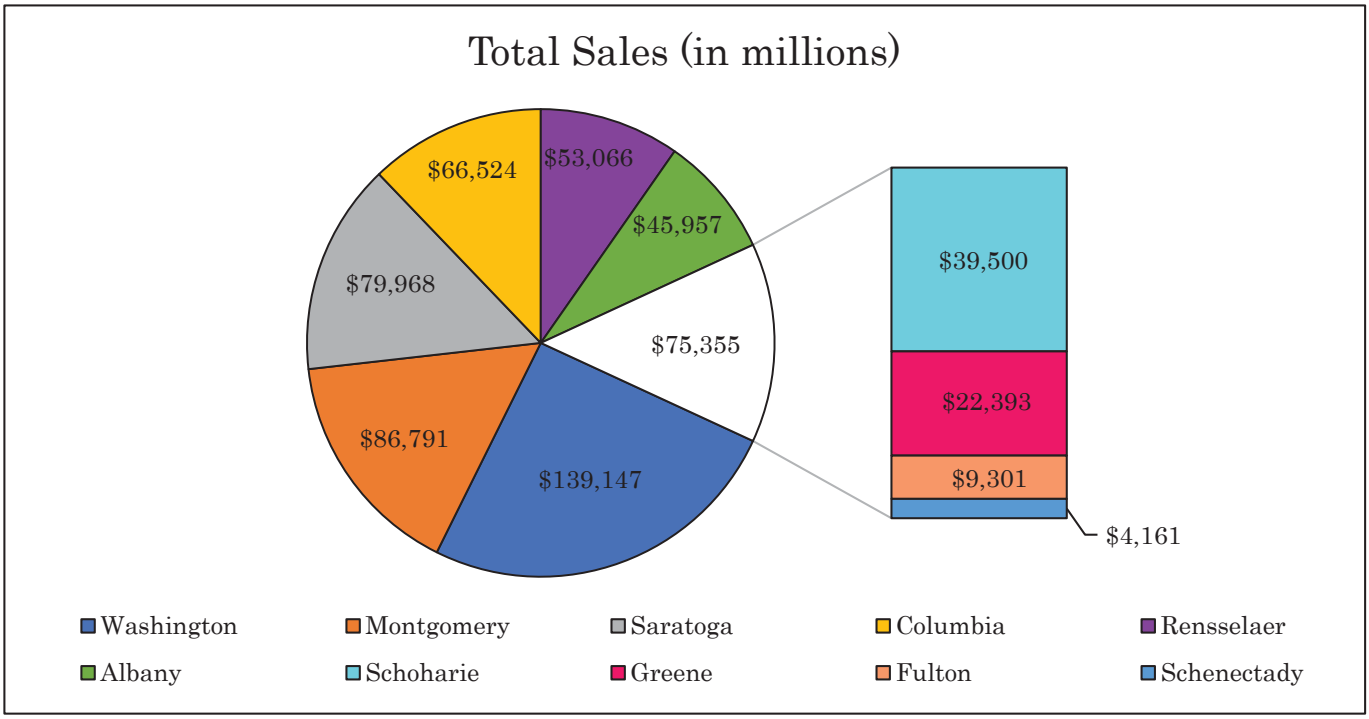
Sales of crops presented a unique result. While total sales followed a predictable pattern, the greatest value generated from crops belonged to two of the "smaller" counties. Columbia and Albany counties led the Region with $35.9 million and $31.0 million in sales respectively. This outpaced even Washington and Montgomery counties which saw most of their value generated by livestock sales.

In terms of specific commodities, the Region has a clear leader. In 2012, $249.2 million, almost a quarter of a billion dollars, of milk from dairy cows was sold. Unsurprisingly, this was led by Washington and

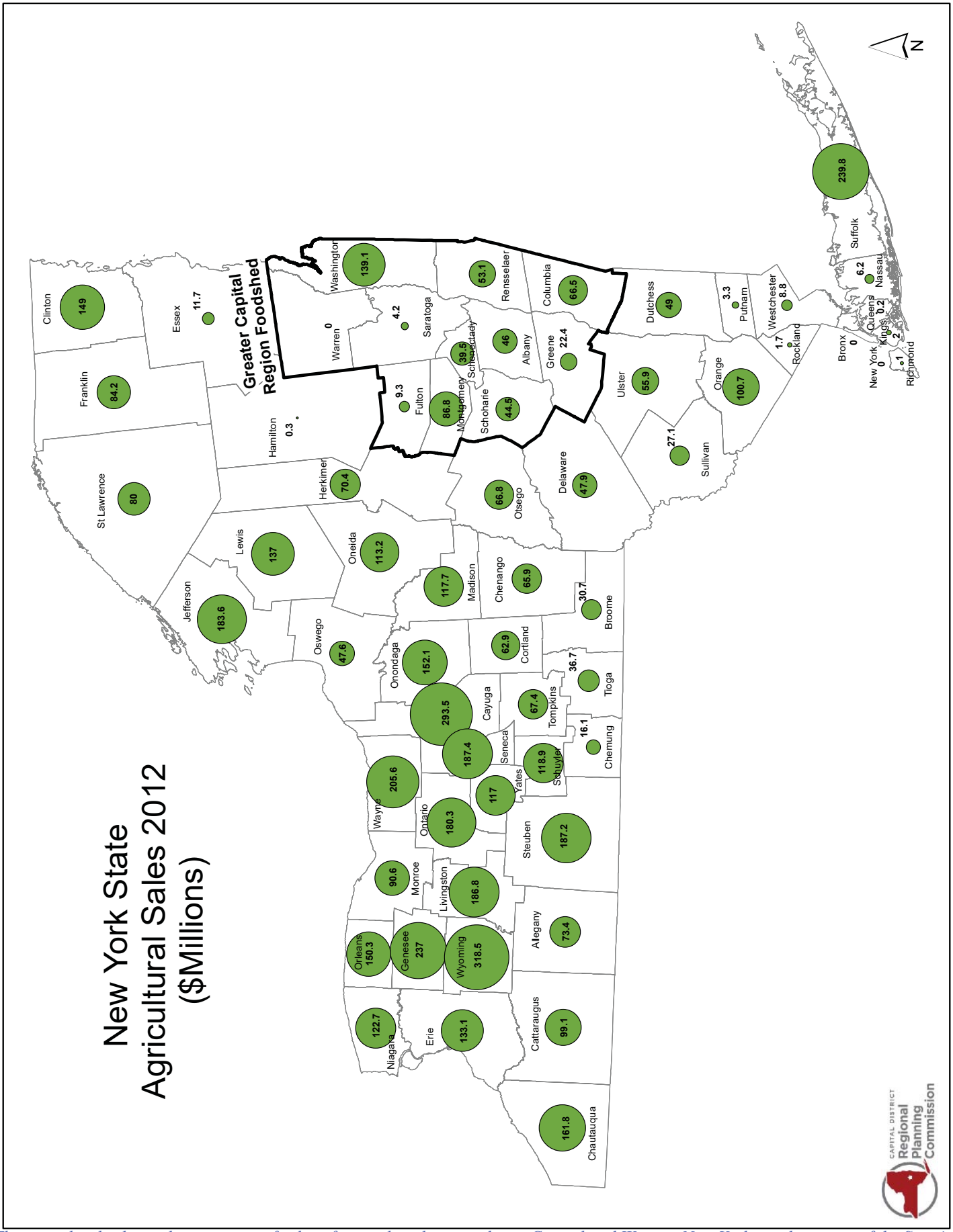
[1]- Food Access and Insecurity in the Capital Region. Kayla Rissew, *Hunger and Food Security Policy Brief May 2016.* Siena College, May 19, 2016. *https://www.siena.edu/assets/files/general/ace-cpi-brief-2016-food-access-and-insecurity-in-the-capital-region.pdf*



The highest concentration of the Region's farms can be found in Washington County (17.4%). Saratoga, Schoharie, Rensselaer, Albany, Columbia counties all comprise roughly equal shares. Greene, Fulton, Schenectady, and Warren counties combine for just 15.8% of the Region's farms.



In terms of Regional sales, Washington County dominates. With $139.1 million in sales, the County generated more than $50 million in sales more than the next closest county. Absent from this list is Warren County. Due to the County's extremely limited output, their sales data was suppressed for privacy.



The map clearly shows that, in terms of sales of agricultural commodities, Central and Western New York are the center of the State's agriculture economy. The Greater Capital Region Foodshed's sales pale in comparison with none of the counties ranking in the State's Top 10 for sales.

Montgomery counties, respectively producing $93.4 and $49.8 million dollars, 57.4% of the Region's total milk sales. For comparison, the Region's next most valuable product was Grains, valued at $53.9 million, less than a quarter of the sales of milk.

Regional and State Output

So how did the Region's agricultural output compare to the rest of New York State? While the Region's farmland comprises 11.8% of the State's total farmland, the Region slightly under-performs in sales. The Region's $546.8 million in sales accounts for only 10.1% of the State's total agriculture sales of $5.4 billion. Fulton, Saratoga, and Warren counties produce very little, and their inclusion in the Region help to depress the overall share of sales. Even though the three counties combine for more than 120,000 acres, they do not appear to produce a great deal of sales.

The Region's two largest products, milk and grain, accounted for only 10.3% and 6.3% of the State's total production. The Region, however, is responsible for 28.3% of the State's horses and ponies. This could be related to the horse racing culture surrounding the Saratoga Racetrack. The Region is also responsible for only 8.6% and 11.1% of the State's total sales of crops and livestock respectively.

State Rank	County	Sales (millions)
1.	Wyoming	$318.5
2.	Cayuga	$293.5
3.	Suffolk	$239.8
4.	Genesee	$237.0
5.	Wayne	$205.6
6.	St. Lawrence	$187.4
7.	Steuben	$187.2
8.	Livingston	$186.8
9.	Jefferson	$183.6
10.	Ontario	$180.3
Greater Capital Region		
15.	Washington	$139.1
26.	Montgomery	$86.8
28.	Saratoga	$80.0
33.	Columbia	$66.5
37.	Rensselaer	$53.1
41.	Albany	$46.0
43.	schoharie	$39.5
47.	Greene	$22.4
50.	Fulton	$9.3
53.	Schenectady	$4.2
62.	Warren	N/A

A ranking of all the State's counties illustrates how the State's agricultural sales are heaviest from the center of the state west to Niagara County. Eight of the top ten counties in sales are from Central New York or Western New York. Wyoming County led the state with $318.5 million in sales, meanwhile the tenth ranked county, Ontario, recorded $180.3 million. Of the top ten, only Suffolk and Jefferson counties were outside of Central and Western New York, reporting $239.8 and $183.6 million in sales respectively. The Capital Region's lead county, Washington, was ranked 15th in the state. Of the Region's 11 counties, 8 were ranked in the bottom half of the State in terms of sales and four were ranked in the bottom 25% of the State.

With dairy being such a major commodity in the Region, it seemed appropriate to explore the production of dairy products for more recent data. Per the 2015 New York State Dairy Statistics Annual Summary, the Region had 539 dairy farms which produced 125.8 million pounds of milk. This accounts for 12.2% of the State's dairy farms and 10.8% of the milk produced.

Next Steps

With a baseline established for what the Region is capable of regarding agricultural output, the next steps will revolve around determining the levels of consumption within the Region. How can the Greater Capital Region best connect its residents with locally produced food stuffs, and in turn, reduce levels of food insecurity? There is also the matter that the distribution of locally grown produce does not cleanly conform to the arbitrary boundaries of the *Greater Capital Region*, so understanding the economics of how locally grown food is distributed is a key component to connecting local residents with locally grown food. Exploring strategies to meet these needs will require a regional approach that accounts for economic realities, as well as possibly finding ways to increase agricultural output for the Region.

For more information on the project, please visit Capital Roots at *http://www.capitalroots.org/about-us/foodassessment/*.

Drought Conditions Retreat- Region Emerges from Worst Drought in a Decade

The 2016 July/August issue of *Capital District Data* highlighted the Region's worsening drought conditions and proposed to update the situation in early in 2017. With above average precipitation in January and February, and the blizzard in Mid-March, the Region's drought conditions have improved significantly. While the Region is not out of the woods yet, the trend is pointing upward.

The Winter of 2015-16 was unusually mild and resulted in near record low snow accumulation across the Region. While a mild winter may seem preferable to the harsh Winter of 2014-15, it left the Region in a precarious position. With almost no snowpack, there was very little Spring melt, which hurt soil moisture and ground water levels. The lack of Spring melt, combined with lower than average precipitation levels between March and June, meant that the conditions were ripe for drought to develop. Drought conditions in 2016 were widespread, with almost all of New York State as well as the Northeast, being impacted. While droughts do occur in the normally water-rich northeast, the drought of 2016 is considered one of the most intense in recent decades.

As the Region emerges from the Winter, now is the time to ascertain how drought conditions may have changed since August. If conditions have improved sufficiently, then municipalities and farms may not have to prepare for any substantial conservation efforts. If, however, conditions have not improved, then it is important for municipalities and farms to know that drought has persisted and that conservation efforts may be needed. If only limited recharge has occurred since the end of August, the Region could be looking at a scenario where water conservation ordinances such as restrictions on watering lawns, washing cars, filling pools, and more, may be

The Nor'easter that delivered 18 inches of snow to parts of the Capital Region caused mayhem for those caught in its path. While such a storm is unpleasant, and even dangerous, for many, it does have some positive side effects. The storm helped bring seasonal snowfall up to the Region's historic average. After a very mild winter in 2015-16, the Region badly needed the snow to help recharge depleted ground water.

Source: Times Union. Photo by Skip Dickstein http://www.timesunion.com/7dayarchive/article/Spring-is-not-yet-in-sight-forecasters-predict-11005982.php#photo-12557013 . Used with permission from the Times Union.

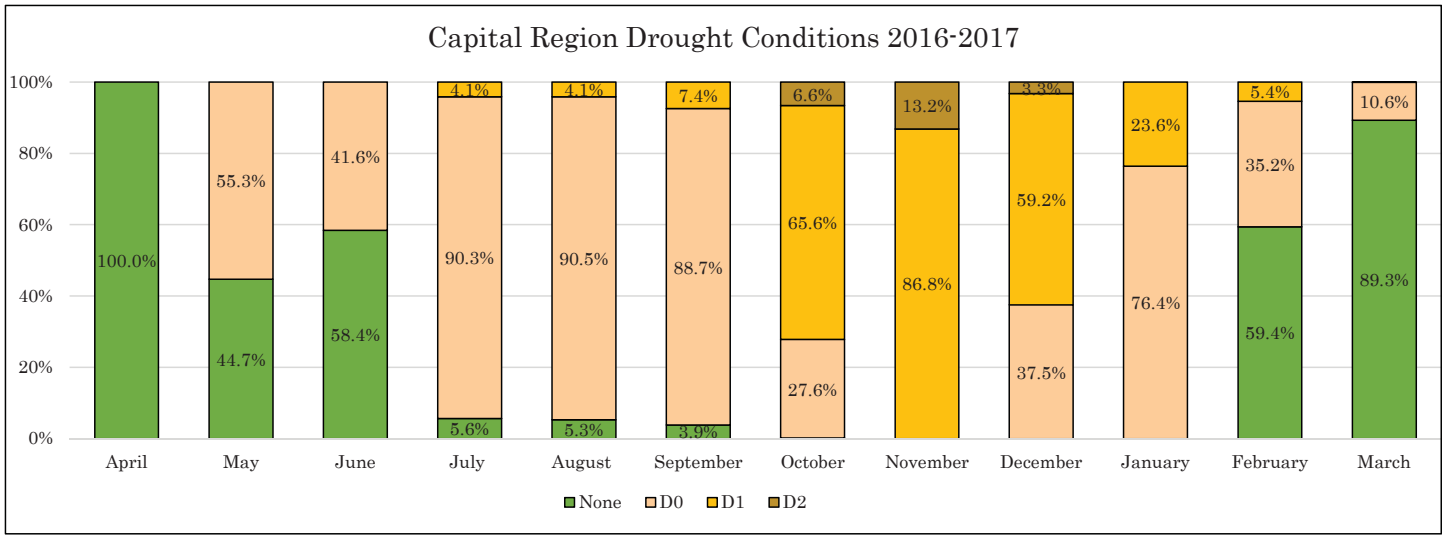
required.

How is drought measured?

Measuring drought is not simply a matter of recording precipitation. Standards for what qualifies as a drought is slightly differently depending on the source. For instance, the Department of Agriculture may have a slightly different standard for measuring drought than the New York State Department of Environmental Conservation. Common elements for measuring drought include precipitation rates, soil moisture, crop conditions, ground water levels in aquifers, stream flows, and many others. For our purposes we will examine drought conditions from three sources, the **National Drought Monitor** (NDM), the **National Oceanic and Atmospheric Administration** (NOAA), and the **United States Geological Survey** (USGS).

The NDM is our primary tool for measuring drought and provides the most localized data for the four county region. The NDM assembles a broad view of many metrics into a single overview, but sacrifices specific measurements and long term historical data. The NDM has five categories to classify drought conditions. D0 Abnormally Dry; D1 Moderate Drought, D2 Severe Drought, D3 Extreme Drought, and D4 Exceptional Drought. The NDM measures drought through a quantitative blend of climatic, hydrologic, and soil conditions, as well as subjective observations from local partners. These local partners provide the NDM a perspective that cannot be ascertained through data alone. This blend of quantitative science and local observation makes the NDM very dynamic and an outstanding resource for measuring the evolving nature of drought.

The NOAA measurement of drought is for a geographically larger area (New York State Climate Division 5- an area that encompasses much of the Hudson Valley) than the localized data from the NDM. While this data is less specific to the Capital Region, it provides the best data available on soil moisture, crop conditions, and long term precipitation data.



The above chart records the average drought coverage per month across four weeks of measurement. In April 2016, the average recording for the month was 100% as dry/drought free, or "none". For the four weeks in May, on average 55.3% of the Region was rated as D0. This climbed to a peak in November when 86.8% of the Region was, on average, rated as D1 and 13.2% rated as D2. By March, the average condition had improved. In the four measurements taken in March, 89.3% of the Region was, on average, declared free from dry/drought conditions.

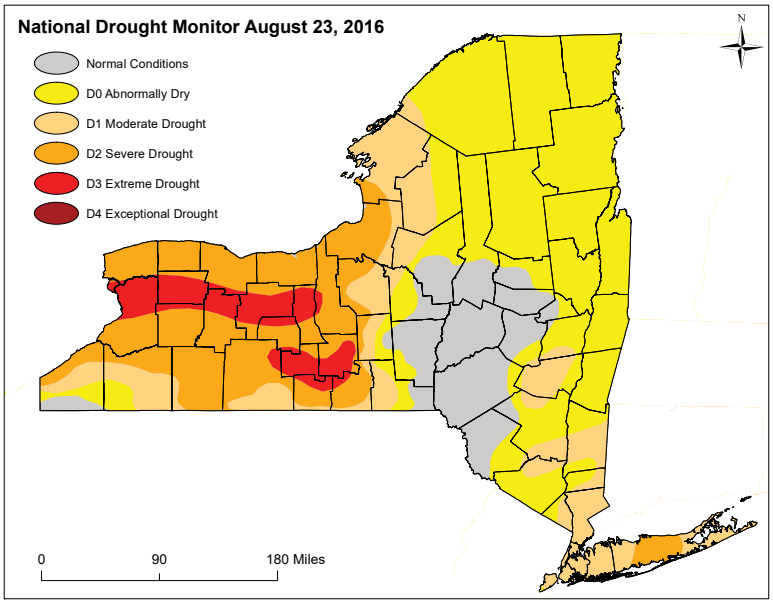
Ground water, is taken directly from the USGS. The USGS monitor's ground water levels in the Capital region's aquifers. By comparing conditions from the National Drought Monitor, the NOAA, and USGS, we can piece together a wide array of conditions and determine the severity of the drought conditions.

Conditions as of the end of August 2016

Last summer, New York State experienced the most severe drought in a decade. The drought was most extreme in the Western part of the state, centered around a strip from Buffalo through the Finger Lakes. In late August, almost the entire state from Onondaga County west was in D2 Severe Drought, while a band from Buffalo through the Finger Lakes reached D3 Extreme Drought. Locally, conditions did not

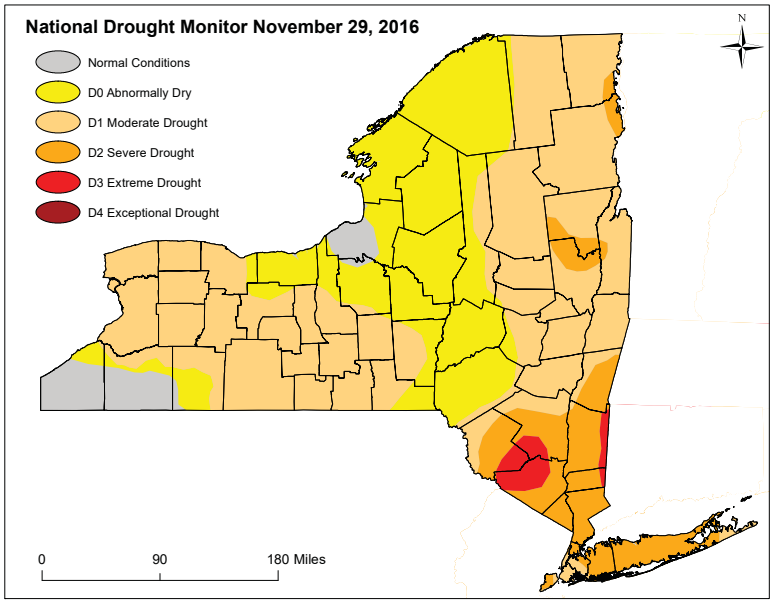
In August, much of Western and Central New York were in D2 and D3 conditions, almost unheard of levels of drought for New York State. From Buffalo to the city of Seneca Falls in Seneca County, a band of D4 conditions ravaged prime farm land.

Eastern New York in August was spared the worst of the drought, with only small pockets of D1 being recorded. Meanwhile, a bubble of "normal" conditions that encompassed much of the Mohawk Valley stretched south to the boarder with Pennsylvania. This was likely a result of soil types in the area that allow for a quicker recharge than soils to the west.



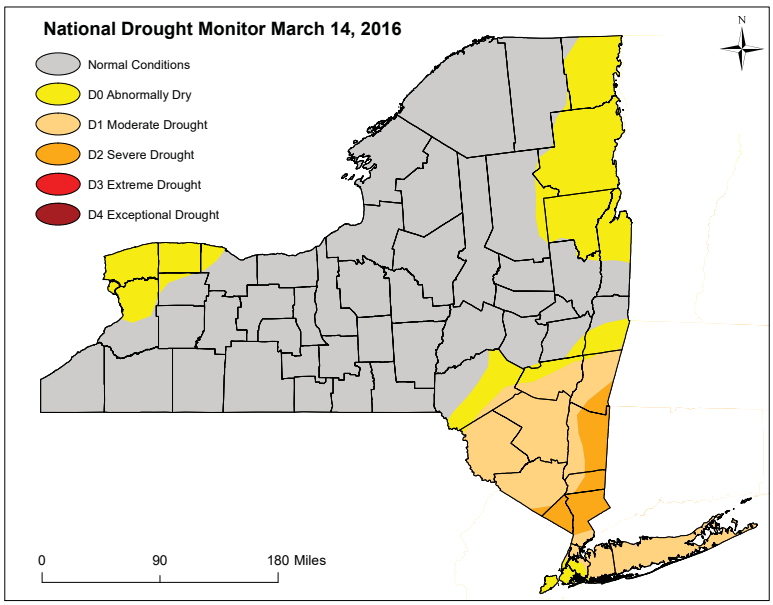
By November, drought conditions across the State had largely reversed themselves from August. The intense D2 and D3 conditions of the summer had subsided to D0 and D1 conditions. The band of D3 conditions that had existed in August in Western New York had improved dramatically.

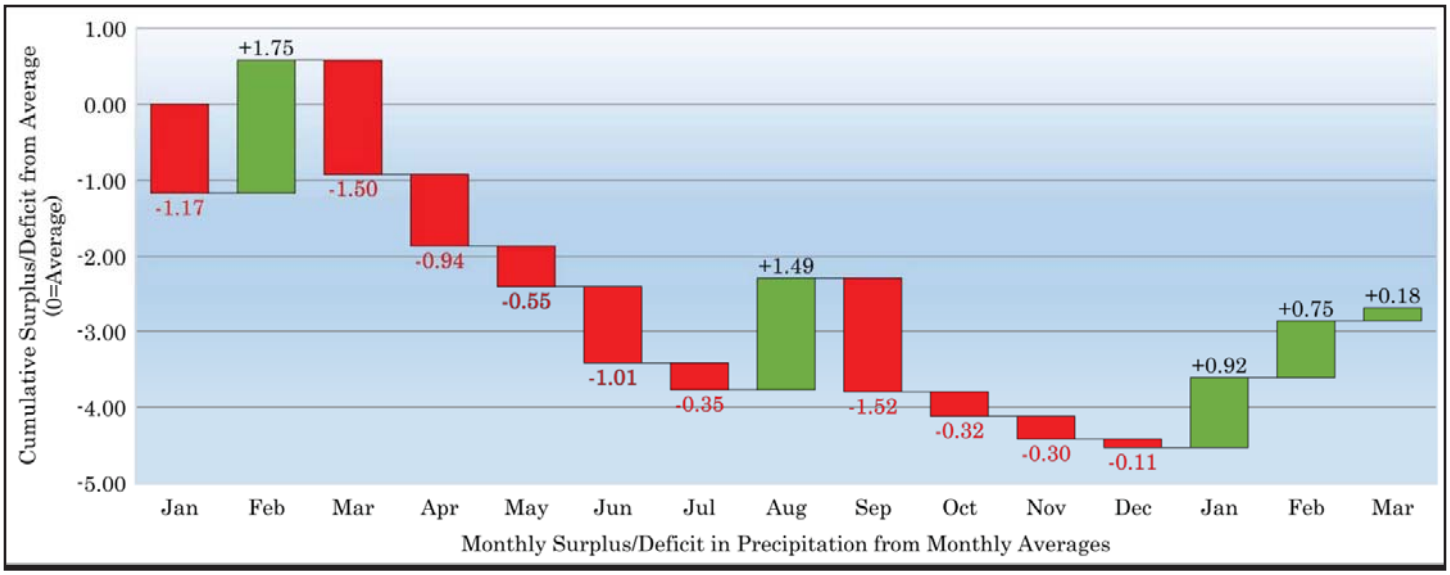
Conversely, conditions from Long Island north to Canada had deteriorated. D2 conditions stretched form Long Island north to the Catskills, with pockets of D3 along the boarders with Pennsylvania and Massachusetts.



By March 14th, conditions across the state were greatly improved. This was most notable in Western New York where only a small pocket of D0 remained along Lake Ontario and Lake Erie.

Eastern New York, from Greene and Columbia counties remained in D1 conditions, with a band of D2 hanging on along the boarder with Massachusetts. Much of this area was hit hard from the March Blizzard and will likely see improvements as the Region heads into April.





In February 2016, the Region saw precipitation levels 1.75 inches above average. Since then, shortfalls in precipitation have left the Region with a deficit. For nine out of ten months, from March 2016 through December 2016, the monthly precipitation was below average. Even after a wet August when precipitation was 1.49 inches above average, the Region saw the year to date deficit reach 4.5 inches in December 2016. The above average precipitation since January has delivered the Region 1.85 inches of precipitation above average, closing the deficit to less than 3 inches.

deteriorate to the same degree as they had in the West, but still reached unusually dry levels. By the end of August, only 4.9% of the Capital Region was classified as "normal", 91.0% was classified as D0 Abnormally Dry and 4.1% as D1 Moderate Drought.

These dry conditions had long term ramifications. NOAA measured catestrophic soil moisture levels in July. On a scale that ranges from +3 (some drying, still excessively wet) to -4 (extremely dry, crops ruined) Central and Western New York's soil moisture was rated at -24 by the end of July. For Climate Division 5, measurements were "better" but still dangerously low, recording -2. While there was improvement late in the Summer, it was too little too late for some crops.

Meanwhile, ground water levels in the Capital Region's aquifers were dropping. USGS reported in August that four of six aquifers were below their average depth, and had been below their average depth for an extended period of time. As water levels decline, it becomes more difficult to utilize them, further compounding water shortages for farmers.

By September, it was clear that precipitation over the Winter was the best scenario for releaving the drought. While conditions were dry, an average winter could suffice for reversing conditions. Conversely, another mild winter could cause a worsening of the drought.

Conditions from September through December

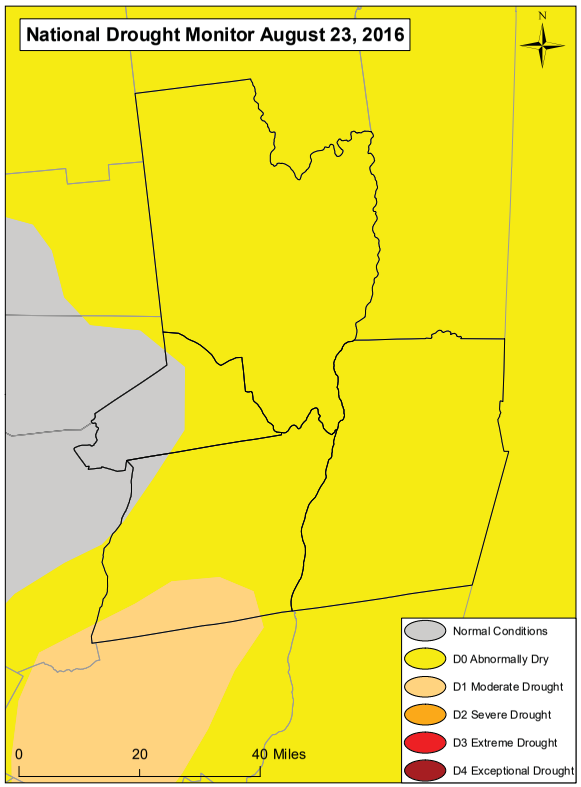
From September through December, drought conditions generally deteriorated.

Precipitation

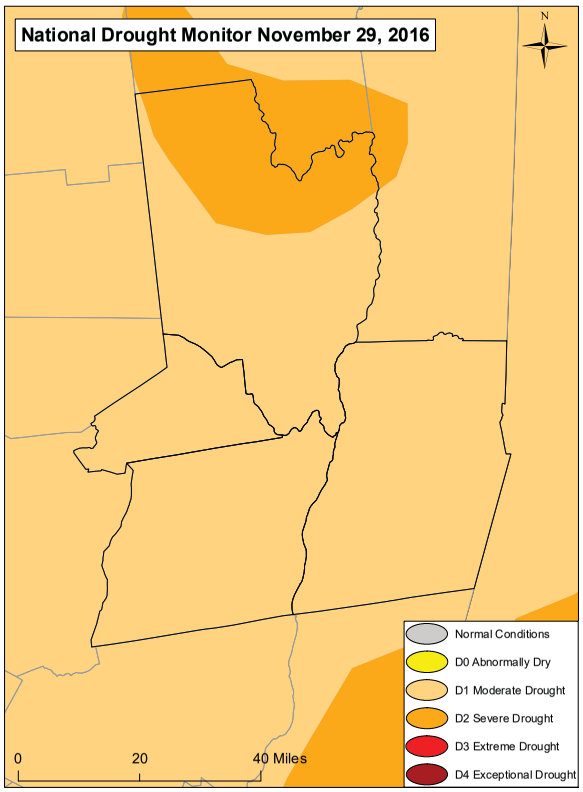
August proved to be a wet month, recording 141.6% (1.5 inches) of the average rainfall across the four county Region, resulting in the year to date deficit of precipitation improving to 2.3 inches. Unfortunately, September proved to be very dry, recording just 56.4% (1.5 inches) of its average precipitation bringing the year to date deficit to 3.8 inches. The deficit continued to grow in October and November when both months recorded only 91% of their average precipitation bringing the year to date deficit to 4+ inches. By the end of December, the deficit since January 2016 reached at 4.5 inches.

Ground Water

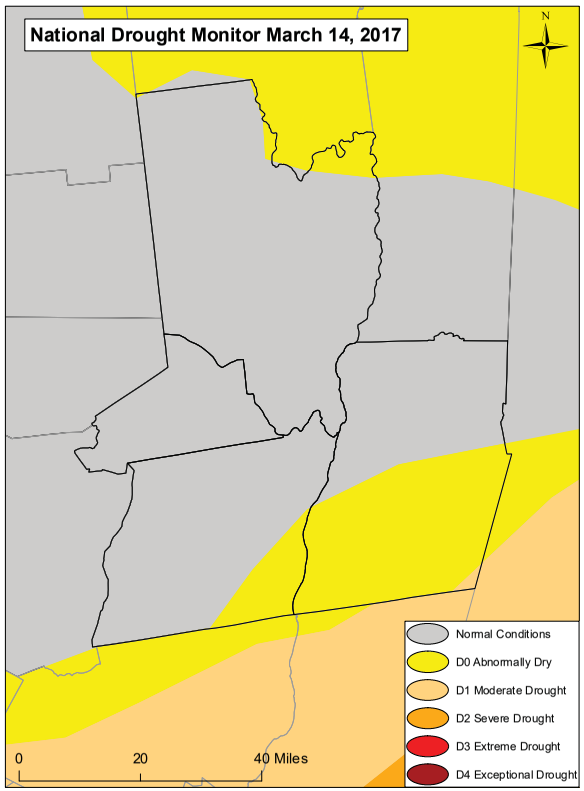
The limited precipitation from September through December helped to further deteriorate ground water supplies across the region. While many aquifers across the state began to show signs of recovery late in the year, those in the four county Region lagged behind. The four aquifers in the Region highlighted in the original article were the SUNY Albany, East Greenbush, Clifton Park, and Schenectady aquifers.



Conditions in the Capital Region in the month of November were predominatley classified as D0. There was a small area of D1 in southern Albany County in the towns of Westerlo, Rensselaerville, and Coeymans. There was also an area in western Schenectady County that was classified as normal.



By November, conditions in the Capital Region had deteriorated significantly. Where the Region had been predominately classified as D0 in August, it was now almost uniformly D1, with a pocket of D2 in Northern Saratoga County. Even the area of western Schenectady County that had been classified as normal in August was classified as D2 in November. This period was one of the driest periods in decades for the Capital Region.



By March, normal conditions had returned to much of the Region, cutting through the very center of the four-county area. D2 conditions had been fully removed from the Region, while only an extremely small sliver of D1 remained in the southeastern corner of Rensselaer County. D0 conditions were still reported, but they were now confined to a small area in Albany County, the southern half of Rensselaer County, and northern Saratoga County around the city of Glens Falls. With the late season blizzard in March, it is likely that these conditions will continue to improve into April.

SUNY Albany Aquifer- The aquifer measured at a site near SUNY Albany saw its depth below the surface remain at 11 feet or deeper over the four month period. By the end of December, the aquifer was nearly three feet below its median depth for that time of year.

East Greenbush Aquifer- The aquifer located under East Greenbush saw its water deficit grow through the 4 month period. From September through December, the depth of the water fell to almost 41 feet below the surface, declining by roughly a foot, and nearly three feet below its median depth.

Clifton Park Aquifer- The shallowest of the Region's aquifers, the Clifton Park Aquifer experienced modest improvements to 4.5 feet below the surface. This improvement still left the depth 2.5 feet below the median depth of the aquifer.

Schenectady Aquifer- From September through December, the aquifer in Schenectady improved slightly in overall depth from 9.5 feet to 8.5 feet. However, this left it roughly 2 feet below its median depth.

While there were solid levels of precipitation in October through December (both rain and snow) it did not seem to percolate down to the Region's aquifers. This could be attributed to short intense rainstorms, frozen/semi frozen soil, and quickly melting snow. So, while there was plenty of precipitation, it did little to improve ground water levels since much of it behaved as runoff instead of seeping into aquifers. The Region's ground water would have been better recharged by either slow rain events, or a snowpack slowly melting.

Overall, the Fall and early Winter saw drought conditions worsen across the Region. In September, only 3.9% of the Region was drought free, with 88.7% declared as D0 and 7.4% as D1 by the NDM. By November conditions had deteriorated further, with 86.8% of the Region classified as D1, and 13.2% classified as D2.

Conditions Since the end of December

Since the end of December, conditions across the Region have improved.

Precipitation

Since January, the Region has experienced above average levels of precipitation. January's precipitation was reported at 134.8% (0.9 inches) above average; this was followed by February which recorded 131.4% (0.75 inches) of its average precipitation. By the end of February, the Region's deficit since January 2016 was 2.9 inches, the smallest deficit since August.

This precipitation did not result in a deep snowpack, however. By the end of February, unseasonably warm weather had melted what little snowpack remained and it seemed unlikely that there would be sufficient snow for the Spring thaw to help replenish ground water.

But situations can change quickly, and the Nor'easter of March 14th and 15th completely changed the situation for the Region. The storm required that this article be adjusted significantly to account for the record (or near record) amount of snow received. According to the National Weather Service, the Albany International Airport received 17 inches of snow from the storm. This storm brought the seasonal snowfall up to normal, but more importantly it provides a deep snowpack across the Region. If this snowpack can survive, and be added to, this could be the opportunity for the Region to completely reverse its year-long deficit.

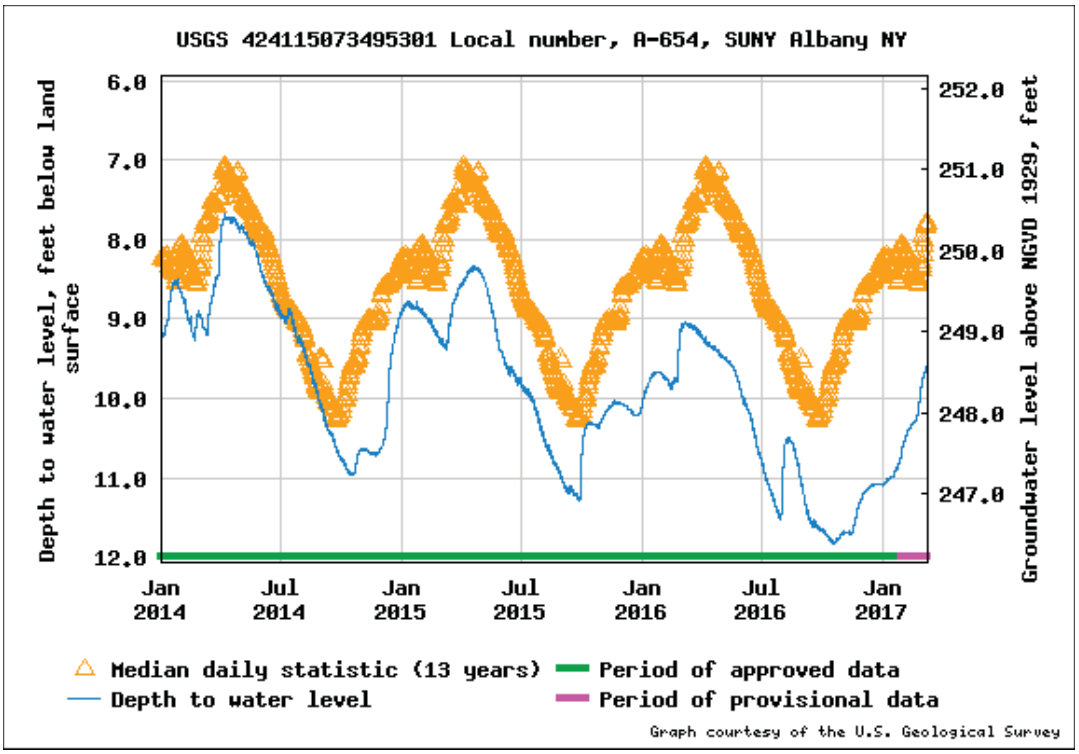
Ground Water

With all of the precipitation since the beginning of January, how has ground water been impacted?

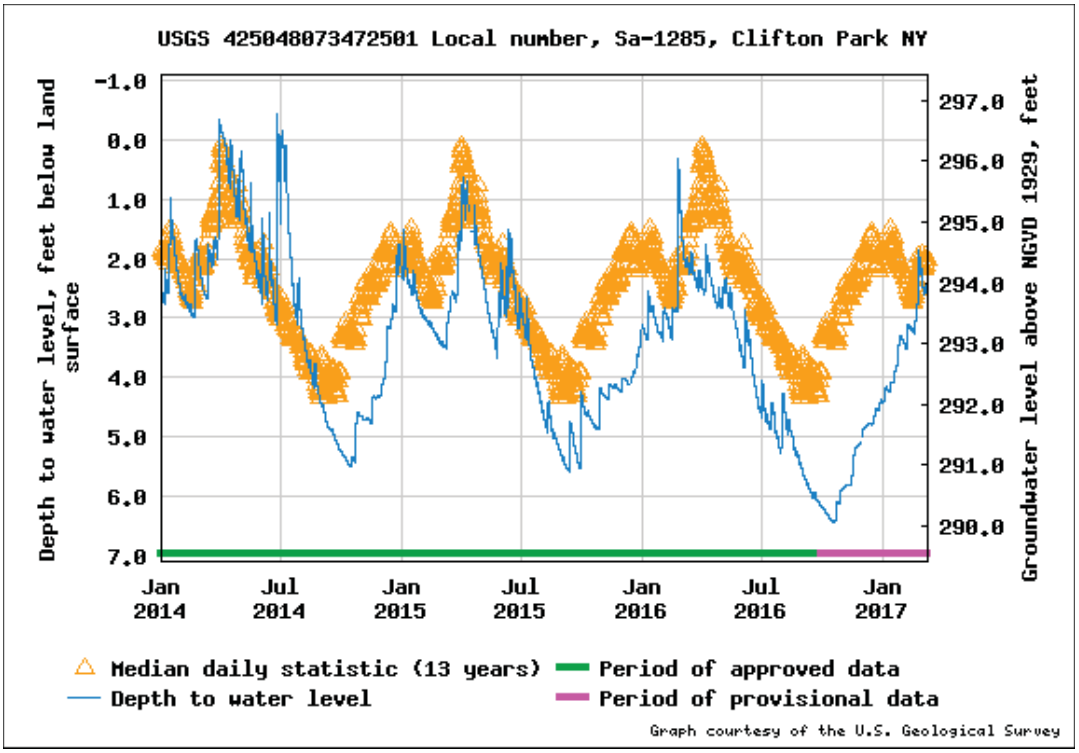
SUNY Aquifer- Steady improvements to the depth of the aquifer have been monitored over the last two and half months. Since January 1st, the deficit has closed from roughly 3 feet to roughly 2 feet below median depth.

East Greenbush Aquifer- The depth of the East Greenbush Aquifer means that it recharges more slowly than the shallower aquifers. Since January, only a minor improvement in depths has been recorded. By March 16th, depths were reported at 40.5 feet, 2 feet below median depth.

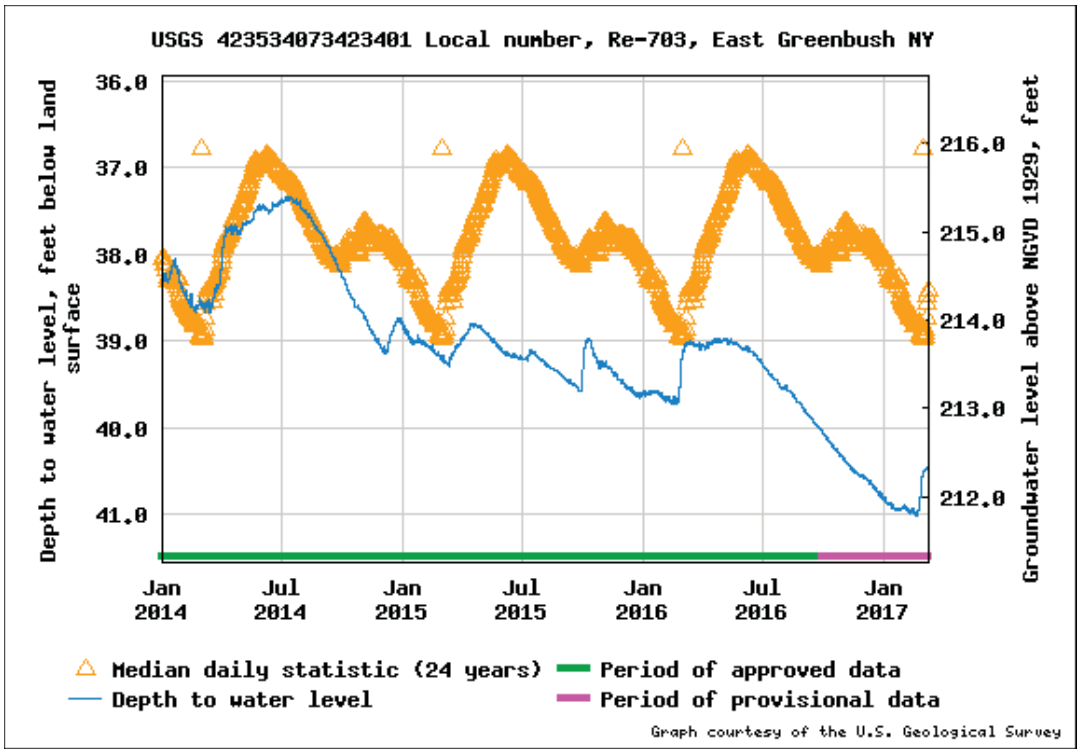
Clifton Park Aquifer- Steady gains in aquifer depth have closed the deficit. Preliminary reports in mid to late February showed that the aquifer was very close to its median depth. Since then, through March 16th, the preliminary data shows that the deficit has widened slightly to 1.5 feet below average, but this is still an improvement from the 2.5 feet deficit from January.



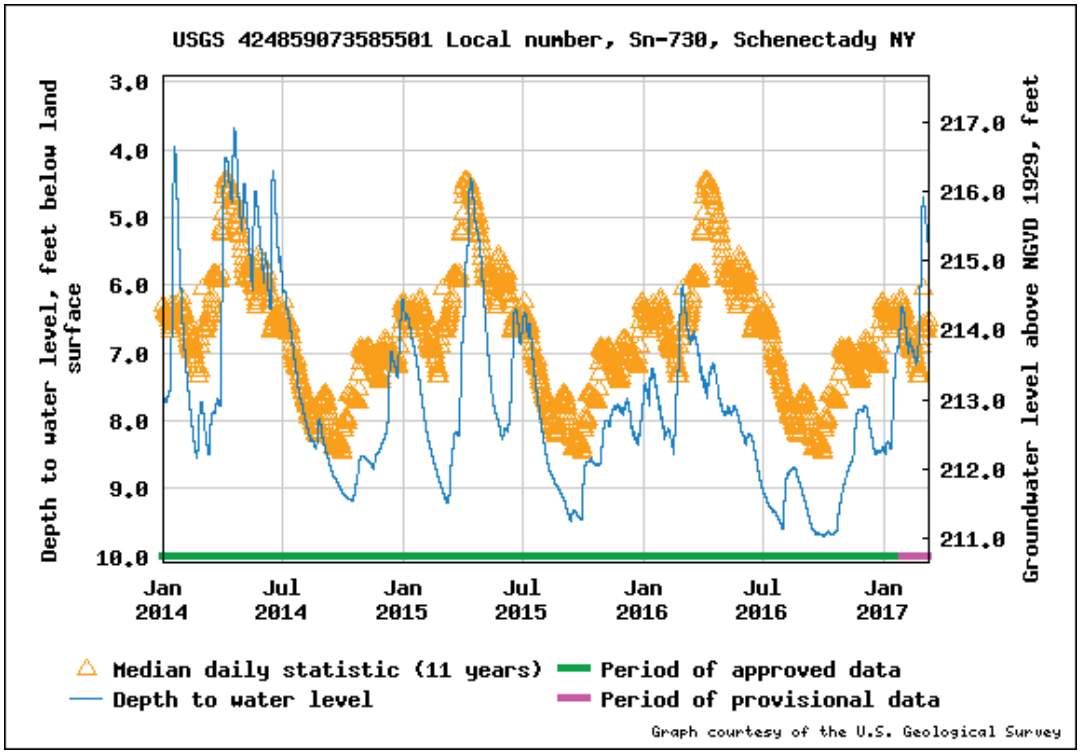
The SUNY Albany Aquifer has had a deficit since mid 2014. Since then , through all of 2015 and 2016, water levels in the aquifer have continued to decline year-to-year, declining to almost 12 feet in early Fall 2016. Currently, the aquifer is enjoying a period of recharge and the deficit has closed to roughly two feet below its average depth.



The Clifton Park Aquifer has generally experienced short periods of deficits before recharging to its average depth. Since the Summer of 2016, the aquifer experienced a sharp decline in water depth, widening the deficit significantly. Since then, the aquifer has recharged sharply. By March 2017, the deficit had closed to 1.5 feet.



The depth of the East Greenbush aquifer means that it is slow to respond to weather events. For much of the previous two years, the aquifer's depth has lagged below its historical average. For most of 2015, water depths in the aquifer were flat or in decline, showing almost none of the typical recharge experienced in the late Spring and early Summer. The following year in 2016 the situation was even worse with depths plummeting to almost 41 feet by early 2017. While there has been a slight improvement in water depths because of heavy precipitation in January and February, it has resulted in only a modest improvement in the aquifer's depth.



After a year in which the water depth of the Schenectady aquifer had fallen well below its average depth, the aquifer is currently at or above its average depth. The quick turnaround in water depth within the aquifer is likely attributed to the fact that it is shallow and more susceptible to weather events such as those experienced in January and February.

Schenectady Aquifer- Dramatic improvement has been experienced in the Schenectady aquifer since January. From February through March 16th, the aquifer has recovered to average levels. This reverses a trend of below median depths since early Fall 2015.

The general improvement in the Region's ground water supplies is encouraging, especially in light of the blizzard in mid-March. While the snowpack had mostly melted by the end of March, it, along with the heavy rains of late March, are likely to have provided recharge to the Region's aquifers.

What could this mean for the Spring and Summer?

Recent activity suggests that the Region is in good position to avoid serious drought conditions in the Spring. Had the recent snowstorm not delivered 17 inches of snow it would have required a very wet Spring to recover before the hot and dry Summer months.

A wet winter has helped relieve the Capital Region from drought. While groundwater levels have not fully recovered, conditions have improved enough that most of the Region is no longer classified as either D0 or D1. The Region is still facing a 2+ inch precipitation deficit, but if conditions continue along their current track, the Region will have a very green Spring.

Source: Washington Park tulips are early- and beautiful. All Over Albany. April 20, 2012 http://alloveralbany.com/archive/2012/04/20/washington-park-tulips-are-way-early----still-beau . Used with permission from the Times Union.

Instead, both local municipal governments and agriculture can breathe a little easier knowing that the snow may have been enough to remove any lingering drought conditions. If drought conditions had persisted at the rate they were in November, it could have been possible that local governments may have been forced to enact water conservations ordinances, and that farmers may have had difficulty tapping ground water resources to irrigate their crops. Instead, the average condition across the Region improved dramatically through March. For the month of March, on average, only 10.6% of the Region was classified as D0, while on average 89.3% was classified as free from dry/drought conditions. This marked a strong rebound from November when drought conditions were at their peak. The next major test will come in early April when the full impact of the snow storm can be measured. While the storm has almost certainly improved conditions, the Region does find itself with a continued precipitation deficit. Without continued heavy precipitation, it is unlikely that the Region will fully recover to where it was in April 2016 when it was completely free of dry conditions.

While it is too early to declare the Region out of the woods, it is reassuring to see that drought conditions have lessened. CDRPC will continue to monitor drought conditions throughout the Region as we head into the Spring and Summer months and will be sure to update in the future if drought conditions return.

CAPITAL DISTRICT
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