

Delaware Water Supply Coordinating Council Meeting  
January 26, 2017  
Final Meeting Minutes

**ADMINISTRATIVE- John Barndt, Chair**

Mr. Barndt called the meeting to order at 10:01 a.m.

Mr. Barndt invited Secretary David Small of DNREC to this meeting, however, he could not attend but expressed his thanks, gratitude, and best wishes to this council.

Mr. Barndt thanked those who have aided in closely monitoring water conditions the past nine months including the DGS, WRA, DRBC, and major water companies in northern Delaware. They participated in weekly or bi-weekly calls since the fall and kept all needed officials closely apprised of conditions.

Mr. Barndt announced to the Council that Mr. Ed Hallock is retiring at the end of this month as Program Administrator with the Department of Public Health and Social Services, Office of Drinking Water. Mr. Hallock gave his thanks to everyone he has worked with over the years. He enjoyed being a part of this group as well as other groups. Many members expressed their gratitude to Mr. Hallock for his service.

Mr. Barndt noted that the Department will be tightening up on the WSCC Membership per a recent discussion with the Governor's office. WSCC members will be contacted.

**REVIEW AND APPROVAL OF SEPTEMBER 29, 2016, DRAFT MEETING MINUTES**

Mr. Barndt asked if anyone had any questions, comments, or concerns about the September 29, 2016, draft meeting minutes. Mr. Victor Singer wanted the "very good points" raised and later noted by Ms. Fleming to be spelled out. These will also be addressed at today's meeting regarding the 13<sup>th</sup> report discussion. Mr. Hallock motioned to approve and Mr. Joseph DiNunzio seconded. All were in favor. None opposed. Mr. Barndt accepted the minutes with the condition that Mr. Singer's comments would be entered. [Note: Mr. Singer has since provided these comments and they have been added.]

Final minutes are posted online at <https://publicmeetings.delaware.gov/Meeting/38371> .

**WATER CONDITIONS REPORT- Stefanie Baxter, DGS**

Ms. Baxter presented a handout summary as of January 25, 2017, of Delaware hydrologic conditions that are a snapshot of water conditions and are tracked on a monthly basis (see attachment titled Northern Delaware Drought Advisory Guidelines).

As stated in Ms. Baxter's handout and PowerPoint Presentation:

- Precipitation for a 12-month period at the Wilmington Airport is -2.76". This is well above the -6" drought watch. For a 6-month period is -4.36". This fell an inch. This is hanging within drought watch.

WSCC Final Meeting Minutes  
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- Brandywine Creek (30-day moving avg) is at 215.9 mgd. White Clay Creek-Stanton (30-day moving avg) is at 80.3 mgd. White Clay Creek-Newark (30-day moving avg) is at 34.7 mgd. Stream flows are doing well although the 30-day moving averages indicate normal flow (between 25th and 75th percentile), 64% of the daily flows on the Brandywine were below normal (<25 percentile) during the period September 2016 through January 2017.
- Well Db24-18 is at 15.13 (fbls) and is now in drought warning status.
- The Water Conditions Index is 5.75. This is in normal range. Conditions are doing well.
- Continuing to monitor chlorides. It is 73 ppm. This is very well.
- Hoopes Reservoir (City of Wilmington) is currently at -7.5 ft. (1/17/17) due to the ongoing maintenance. Newark Reservoir- -3.5 ft. (1/17/17). Mr. Mark Neimeister reports it is now -2.5 ft.
- Aquifer Storage and Recovery: SUEZ ASR is at 21 mg (1/17/17) and Artesian Water ASR is at 21 mg (1/17/17).
- There are no releases being made into the Brandywine from the Marsh Creek Reservoir.
- Chlorides on the Delaware River (1/24/17) are currently at River Mile 74 and the normal is at River Mile 69. Stefanie noted that this is within the normal range for the salt line.
- The basin wide drought watch was lifted on 1/18/17 per automatic reservoir triggers.
- Reservoirs in New York City (DRBC 1/19/17) storage 161 bg or 25 above drought watch.
- The Kent County Hydrologic Conditions: precipitation Dover 12-month -3.3", 6-month -2.42", 5-month -1.20". Streamflow for the St. Jones River at Dover 30-day moving average for December 26 to January 24 at 31.0 mgd and is normal. Groundwater level for Mc51-01a (January 2017) is 13.60 ft. below land surface and is normal.
- The Sussex County Hydrologic Conditions: precipitation Georgetown 12-month +8.43", 6-month +3.74", 5-month +6.81". Streamflow for the Nanticoke River at Bridgeville 30-day moving average for December 26 to January 24 at 59.0 mgd and is above normal. Groundwater for Qe44-01 (January 2017) is 7.5 ft. below land surface and is normal.

Ms. Baxter told Mr. Barndt that six counties, three in Delaware, and three in southern New Jersey, are the only counties NOT in drought watch in the entire Delaware River Basin.

Ms. Baxter presented a few Power Point slides (attached) concerning the groundwater levels and precipitation. Several key points were made. While it has been wet with small rain events, we remain in a precipitation deficit. This likely explains the lack of recovery for groundwater in New Castle County. In 2001, it took four months to see groundwater improvements. Therefore, we need to keep a close monitoring of streams and groundwater for the next months to better gauge conditions going into summer. Well Db24-18 is in the unconfined aquifer (located in the Newark area) and is placed in 'typical' soil conditions for the area. Ms. Baxter stated there needs to be above average precipitation to happen, in several months, in order for groundwater levels to continue to elevate. Mr. DiNunzio noted that confined aquifer wells respond differently. Finally, a map was presented to illustrate where the salt line is on the Delaware River. The typical salt line ranges between RM 67 – 76 so the current location is in the normal range.

Ms. Baxter asked if there were any questions, comments, or concerns. There were none. DGS' full analysis is found on <http://www.dgs.udel.edu>

### **FORECAST SYNOPSIS - Kevin Brinson, Asst. State Climatologist**

Mr. Brinson presented on behalf of State Climatologist, Mr. Dan Leathers (attached).

Recent Conditions: 2.8" of rain has fallen so far for this month. He thinks maybe a tenth more of an inch could fall by the end of the month. 3.5 to 4" is the normal range.

The year 2016 was the fifth warmest year since 1895. This helps explain the increased evapotranspiration losses discussed at previous meetings. The annual precipitation was 2.57" above normal but there were eight months that were below normal. Normal is approximately 48 inches. Precipitation totals since December 1, 2016, are okay with precipitation totals slightly below normal so far this winter.

Forecast: The forecast going into the next few days and weeks looks pretty dry. The temperature may be warmer going into March and April. The longer term forecasts are from normal precipitation to slightly below normal. However, the shift in the jet stream north may create drier conditions in the south eastern USA which gives some concern.

Mr. Neimeister asked Mr. Brinson, "How comfortable are you converting snow fall into inches for future predictions?" Mr. Brinson replied "There is liquid equivalent coming out of the atmosphere. There is less precipitation of all kinds."

### **DELAWARE RIVER BASIN DROUGHT STATUS - Ken Najjar, DRBC**

Mr. Najjar was not available to present. However, Ms. Baxter covered most of the information. Of note was the lifting of the Drought Watch for the entire basin.

### **WATER UTILITY REPORTS -**

**Artesian - Joe DiNunzio presented:** All normal with 17 mgd average demand for the month to date. 25 mg stored in the ASR with approximately 0.5 mg added daily. Hope to have 90 mg stored by Memorial Day. No issues with systems undergoing routine maintenance.

**Newark - Mark Neimeister presented:** Fairly normal conditions with demands down until students come back next month and currently using 2 – 3 mgd. Well 11 is down but is low producer. The aerator on the reservoir appears to be working well with associated water quality improvements. Reservoir is 2.5 feet down. White Clay creek flows are OK but do remain 25% below normal.

**New Castle - Ryan Jaeger presented:** Normal usage at 0.5 mgd or 13 mg per month. Treatment of PFC going well with no detect level. Pipe relining project underway which will seal 1890 vintage pipes. Beginning from 2018 – 2020 New Castle selected for unregulated contaminant project.

**Suez - Larry Finnicum presented:** Normal water use at 14.5 mgd. TSC is now unneeded and down. ASR recharge is at 25 mg stored with goal of 75 mg by summer. Recent chloride problems have been from upstream winter road treatment rather than river salt.

**Wilmington - Chris Oh presented:** Normal water use at 15 – 16.5 mgd. Hoopes Reservoir is intentionally down 7.2 ft. with divers in there for maintenance. There was one foot of gain from recharge. They will begin pumping into Hoopes Reservoir once the maintenance is completed.

**Tidewater Utilities - Sheila Shannon presented:** Normal water use for January 2017. 2.4 mgd in Sussex County, 0.4 mgd in New Castle County, and 1.4 mgd in Kent County. No supply issues.

**Sussex Shores - Not present.**

### **DISCUSSION OF NORTHERN NCC WATER CONDITIONS (13<sup>th</sup> Report) -**

Mr. Jerry Kauffman stated that the committee will find the supplies and demands for 2015 used as a base and using population data to help plan through 2030. He recommends a subcommittee convene next month, February. The goal is to complete this report in 2017.

Mr. Barndt mentioned the now initiated Groundwater Monitoring project for Kent County. The DGS will apprise us of progress in the upcoming meetings. This is part of the WSCC's charge to address water supply issues in Kent and Sussex County. He noted that special study areas are being looked at such as the east Dover area and the Piney Point aquifer.

Mr. Singer stated, "We should focus on the demands of water conditions for this year instead of years to come." He stated his opinion to the Council, "We did a good job calling for an emergency council to discuss the situation in September. We were prepared with what could be done." Mr. David Wunsch agreed with Mr. Singer. Mr. Wunsch said, "I agree this Council does indeed do their part when there may be an emergency with water conditions." Mr. Kauffman informed Mr. Singer that the drought guidelines will be reviewed as there have been comments made regarding the winter conditions and perhaps moving too quickly into the various drought levels.

Ms. Baxter suggested we should indicate when we get out of a drought. For example, have a 'drought exit criteria.'

Mr. Brinson asked Mr. Barndt and Council members, "How are we going to deal with a situation similar to 2002 or 2008-2009? Is that going to be discussed?"

### **DISCUSSION OF WSCC MEMBERSHIP FOR NEW ADMINISTRATION -**

Ms. Pamela Patone asked Mr. Barndt and Council members, "Can Kent County and Sussex County Municipalities be on the Council / Committee, too?" Mr. Barndt says that the Water Supply Coordinating Council Membership is presently being addressed to assure compliance with statute as far as appointments. The legislation does specifically say who is officially on the Council but some represent broad concerns and some identified constituents do not attend.

**PUBLIC COMMENTS -**

Mr. Steve Cahill, a geologist with Duffield Associates in Wilmington, stated he enjoyed being here today.

**NEXT MEETING - John Barndt, Chair**

The next Council meeting has been scheduled for Thursday, March 30, 2017, at 10:00 a.m. at the Kent County Administration Building, Room 220.

**ADJOURN**

The meeting adjourned at 11:35 a.m. by Mr. Barndt.

These minutes are not intended to be a detailed record. They are for the use of the Water Supply Coordinating Council members in supplementing their personal notes and recall of Council discussions and presentations and to provide information to Council members unable to attend. Minutes recorded and submitted by Heather A. Helmer and John T. Barndt.

Attendees are listed below alphabetically, last name listed first:

Barndt, John- DNREC, Division of Water  
Baxter, Stefanie- University of Delaware, DGS  
Brinson, Kevin- Asst. State Climatologist  
Cocke, William- DNREC, Division of Water  
Diggins, Allison- DNREC, Division of Water  
DiNunzio, Joseph- Artesian Water  
Eisenbrey, Virginia- Artesian Water  
Finnicum, Larry- SUEZ  
Fleming, Lorraine- Delaware Nature Society  
Gray, Mary Ellen- Kent County  
Hallock, Ed- Department of Public Health, Office of Drinking Water  
Jaeger, Ryan- City of New Castle, Municipal Services Commission  
Kauffman, Jerry- University of Delaware, Water Resources Agency, Director  
Mensch, Laura- Department of Agriculture  
Neilson, Kevin- Delaware Public Service Commission  
Neimeister, Mark- City of Newark  
Oh, Chris- Wilmington  
Patone, Pamela- Municipal Services Commission of the City of New Castle  
Rudd, John- State Fire Marshal  
Shannon, Sheila- Tidewater Utilities  
Singer, Victor- Civic League for New Castle County  
Wunsch, David- University of Delaware, DGS

## Northern Delaware Drought Advisory Guidelines

Reported by the Drought Advisory Guidelines Subcommittee (DAGS), which is composed of the Delaware Department of Natural Resources and Environmental Control, Delaware Geological Survey, and University of Delaware Water Resources Agency with input from the water purveyors and representatives from the landscaping industry. These drought operating guidelines are designed to provide guidance to the Delaware Water Supply Coordinating Council (WSCC) and the Governor's Drought Advisory Committee (GDAC). Responsibility for providing technical guidance for a move up to or down from Drought Watch is with the WSCC. Responsibility for providing technical guidance for a move up to or down from Drought Warning or Emergency is with the GDAC. Final declaration of drought advisories rests with the Governor.

Indicators	Drought Watch Voluntary Conservation	Drought Warning Voluntary Conservation	Drought Emergency Mandatory Restrictions	Status Jan. 25, 2017
<b>Precipitation</b> Wilmington Airport 12-month	-6.00" to -8.99"	-9.00" to -11.99"	>-12.00"	-2.76"
<b>Precipitation</b> Wilmington Airport 6-month	-3.00" to -4.50"	-4.50" to -6.00"	>-6.00"	-4.36"
<b>Brandywine Creek</b> (30-day moving avg)	85 mgd	70 mgd	48 mgd	215.9 mgd
<b>White Clay Creek - Stanton</b> (30-day moving avg)	42 mgd	37 mgd	31 mgd	80.3 mgd
<b>White Clay Creek - Newark</b> (30-day moving avg)	19 mgd	16 mgd	13 mgd	34.7 mgd
<b>Well Db24-18</b>	14 - 14.99 (fbls)	15 - 15.99 (fbls)	16 (fbls)	15.13 (fbls)
<b>Water Conditions Index</b>	5.0-4.0	3.99-3.00	<3.00	5.75
<b>Chlorides</b>	WCC ≤ 37 mgd for 5 consecutive days at SUEZ Stanton Intake	Cl > 250 ppm for 3 days at Christina River at Newport	Cl > 250 ppm for 3 days at UWD Stanton Intake	73 ppm
<b>Hoopes Reservoir</b> (City of Wilmington)	-10 ft (68% capacity)	-12 ft (64% capacity)	-15 ft (57% capacity)	-7.5 ft (1/17/2017)
<b>Newark Reservoir</b>	- 10 ft (70% capacity)	-17 ft (52% capacity)	-27 ft (28% capacity)	-3.5 ft (1/17/2017)
<b>Monitored</b>				
<b>Aquifer Storage and Recovery</b>	Monitor Status	Monitor Status	Monitor Status	SUEZ: 21 mg (1/17/2017) AWC: 21 mg (1/17/2017)
<b>Octoraro Reservoir</b> (Chester Water Authority)	Monitor Status	Monitor Status	Monitor Status	

<b>Marsh Creek Reservoir</b>	Monitor Status	Monitor Status	Monitor Status	No releases being made into the Brandywine
<b>Chlorides on the Delaware River 1/24/2017</b>	Monitor Status	Monitor Status	Monitor Status	Normal RM: 69 Current RM: 74
<b>DRBC Lower Basin Drought Criteria</b>	Monitor Status	Monitor Status	Monitor Status	Basinwide Drought Watch Lifted on 1/18/2017
<b>NYC DRB Reservoirs (DRBC 1/19/2017)</b>	Monitor Status	Monitor Status	Monitor Status	Storage 161 bg or 25 bg above drought watch

fbfs = feet below land surface  
 mg = million gallons  
 mgd = million gallons per day  
 RM = River Mile  
 bg = billion gallons

Delaware Geological Survey:  
<http://www.dgs.udel.edu>

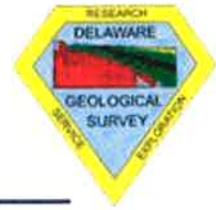
U.S. Geological Survey Streamflows:  
<http://waterdata.usgs.gov/de/nwis/current/?type=flow>

Delaware River Basin Commission:  
<http://www.state.nj.us/drbc>

Delaware Environmental Observing System  
<http://www.deos.udel.edu>

# Delaware Geological Survey

State of Delaware  
University of Delaware • Delaware Geological Survey Building  
Newark, Delaware 19716-7501



## *Kent County Hydrologic Conditions – January 25, 2017*

### **PRECIPITATION**

Dover – Running surplus/deficit

12-month: -3.3"                      6-month: -2.42"                      5-month: -1.20"

### **STREAMFLOW**

St. Jones at Dover – 30-day moving average for December 26 to January 24

31.0 MGD                                      Status: Normal

### **GROUNDWATER**

Mc51-01a – January 2017

13.60 ft below land surface                      Status: Normal

## *Sussex County Hydrologic Conditions – January 25, 2017*

### **PRECIPITATION**

Georgetown - Running surplus/deficit

12-month: +8.43"                      6-month: +3.74"                      5-month: +6.81"

### **STREAMFLOW**

Nanticoke River at Bridgeville - 30-day moving average for December 26 to January 24

59.0 MGD                                      Status: Above Normal

### **GROUNDWATER**

Qe44-01 – January 2017

7.5 ft below land surface                      Status: Normal

# Delaware Geological Survey

## A Few Interesting Slides

Presented to the  
Water Supply  
Coordinating Council

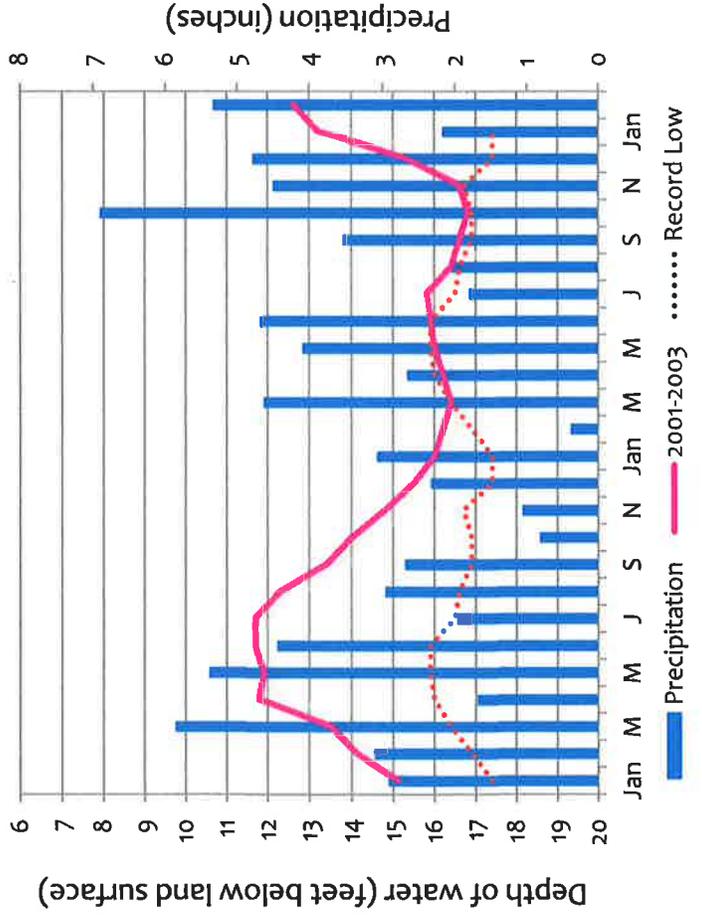
January 26, 2017



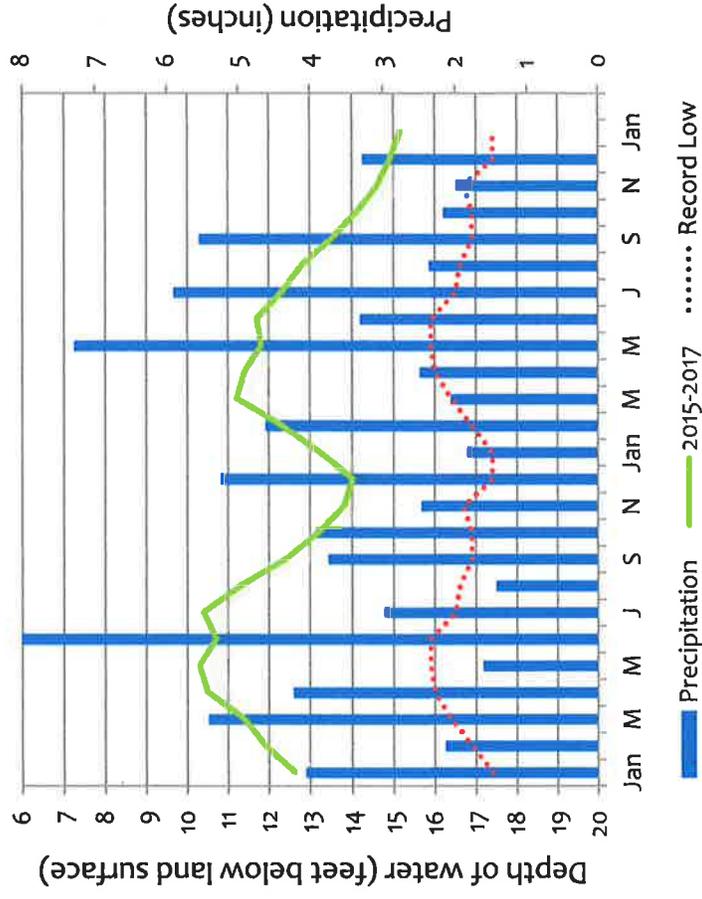


# Precipitation During 2001-2003 and 2015-2017

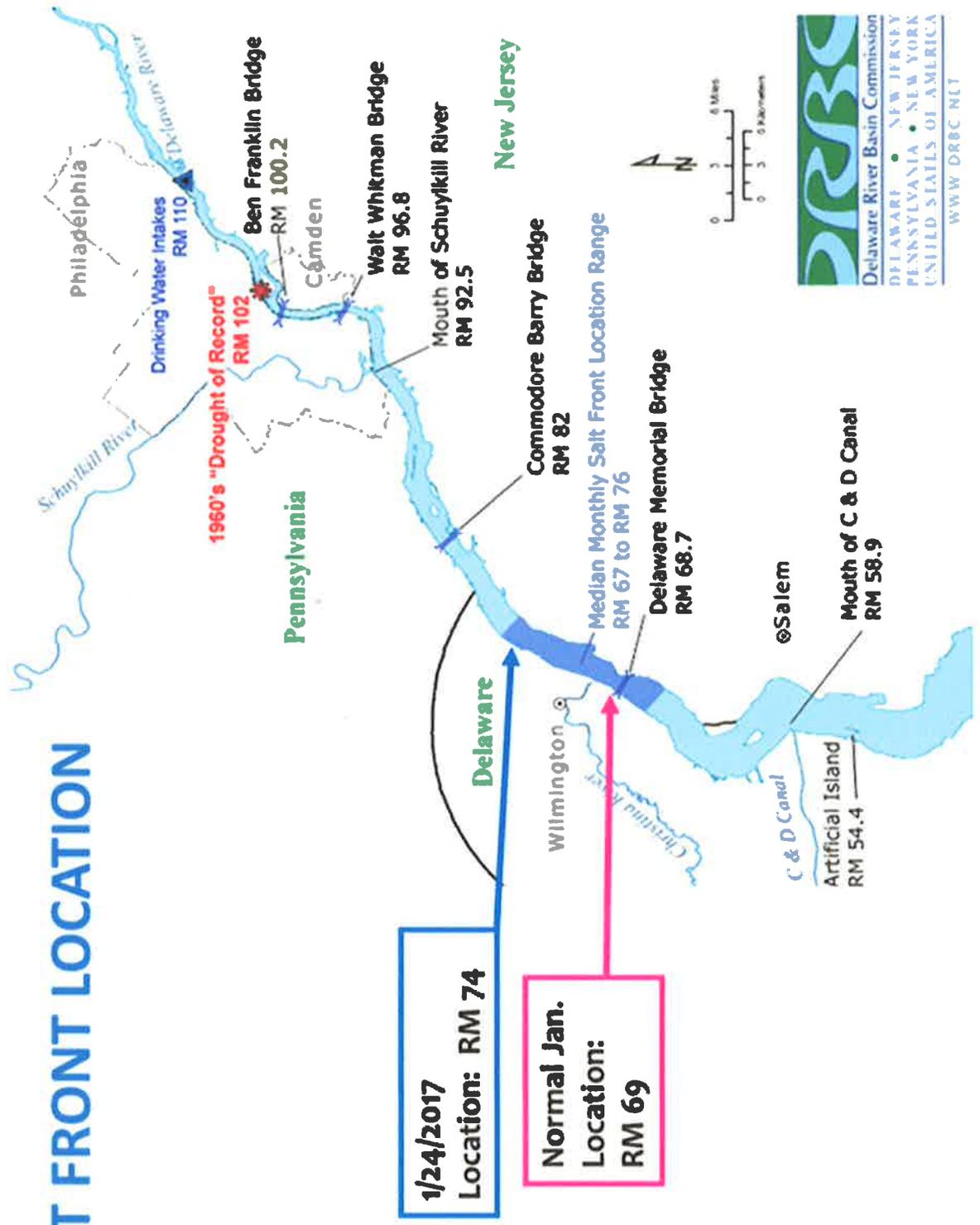
2001 - 2003  
78.35" of rain



2015 - 2017  
92.13" of rain



# SALT FRONT LOCATION



# Questions?

“A lot of people like snow. I find it to be an unnecessary freezing of water.”

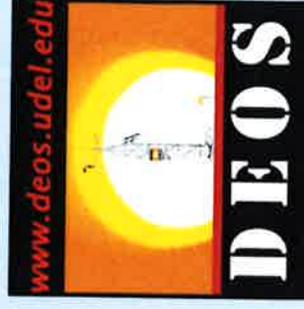
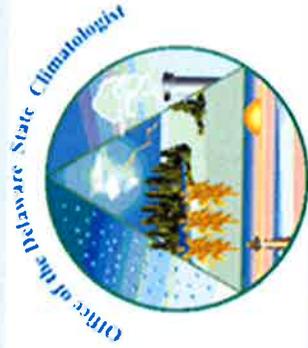
Carl Reiner

# Weather Summary and Forecast

*Water Supply Coordinating Council Meeting*

*January 26, 2017*

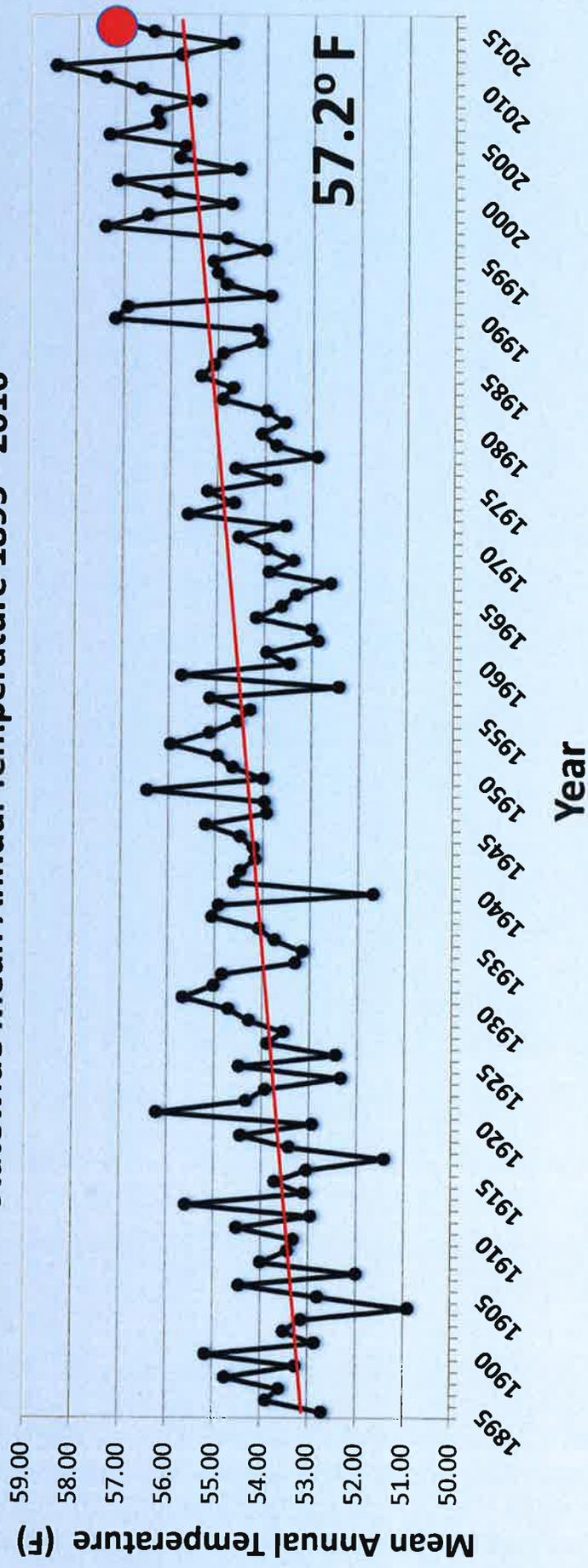
*Office of the Delaware State Climatologist*



# **2016 Weather Summary**

2016 was 1.8° F above the 1981-2010 “normal”, and was tied for the 5<sup>th</sup> warmest year since 1895.

Statewide Mean Annual Temperature 1895 - 2016



Preliminary data supplied by NCDC

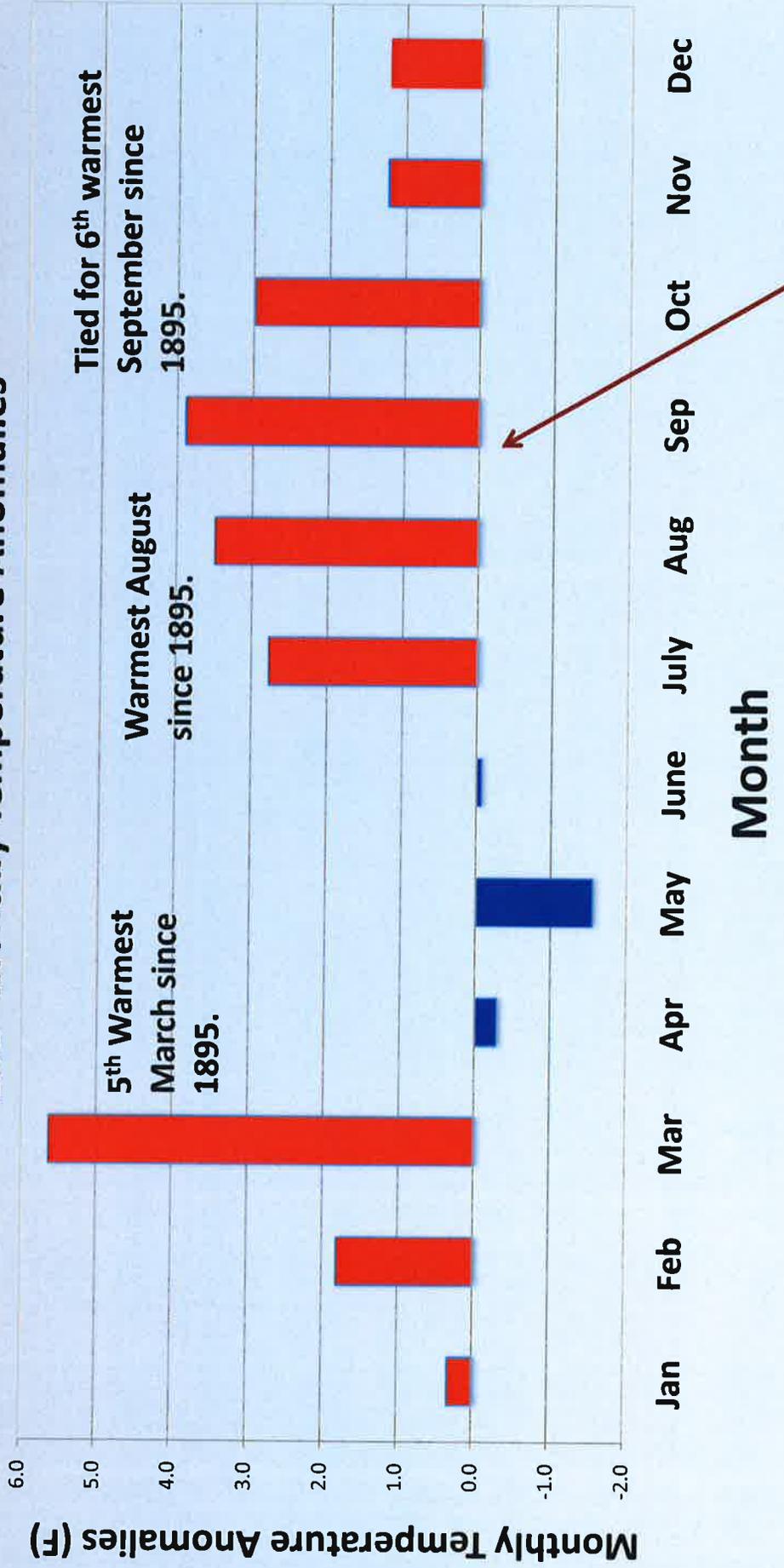


NOAA Satellite and Information Service  
National Environmental Satellite, Data, and Information Service (NESDIS)



# 2016 Statewide Monthly Temperature Anomalies

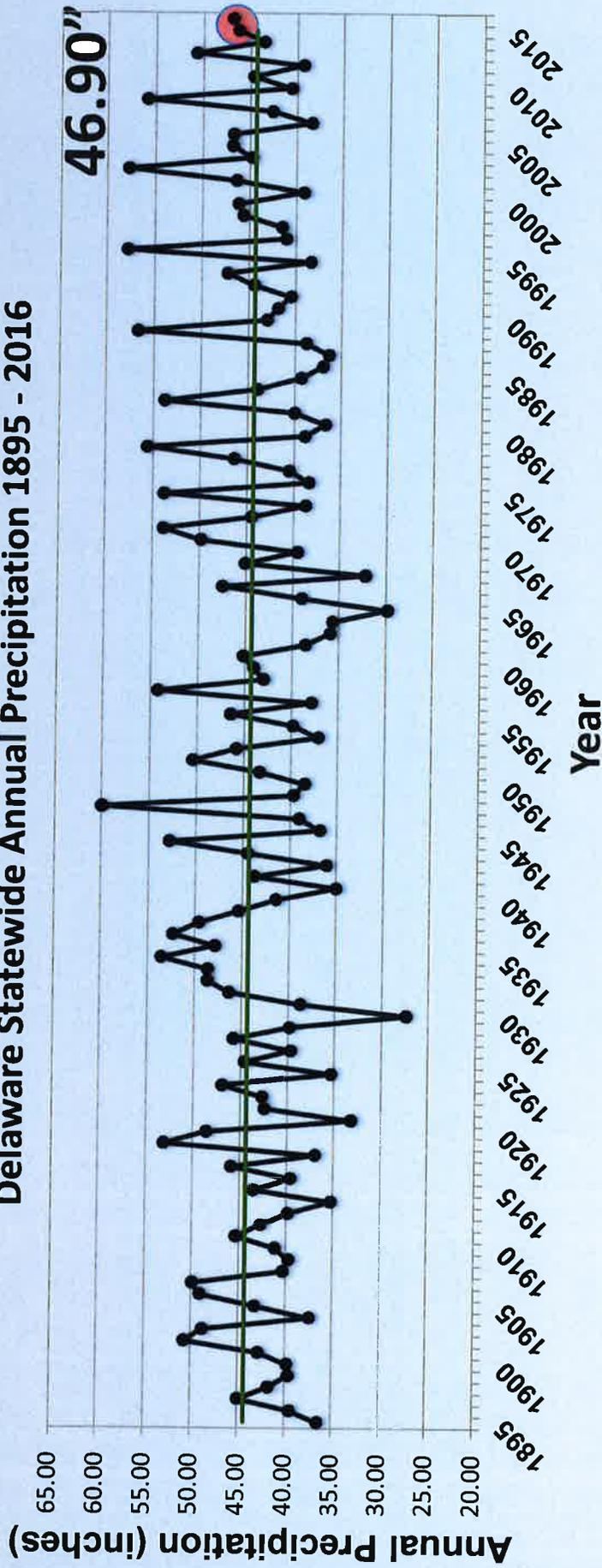
## 2016 Monthly Temperature Anomalies



Large evapotranspiration...

Delaware 2016 annual precipitation was 2.57 inches above the 1981-2010 "normal".

Delaware Statewide Annual Precipitation 1895 - 2016



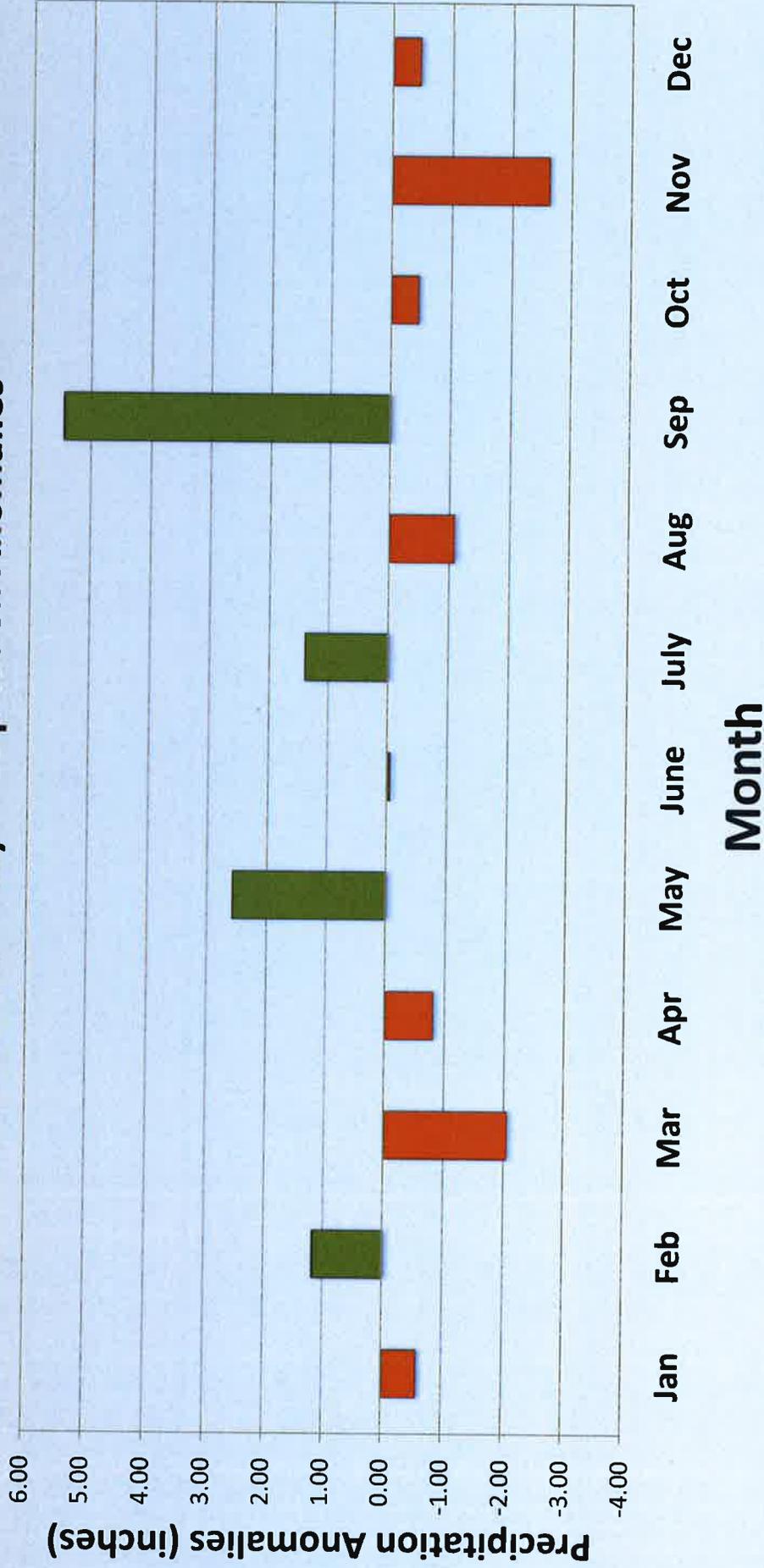
Preliminary data supplied by NCDC



NOAA Satellite and Information Service  
National Environmental Satellite, Data, and Information Service (NESDIS)

# 2016 Statewide Monthly Precipitation Anomalies

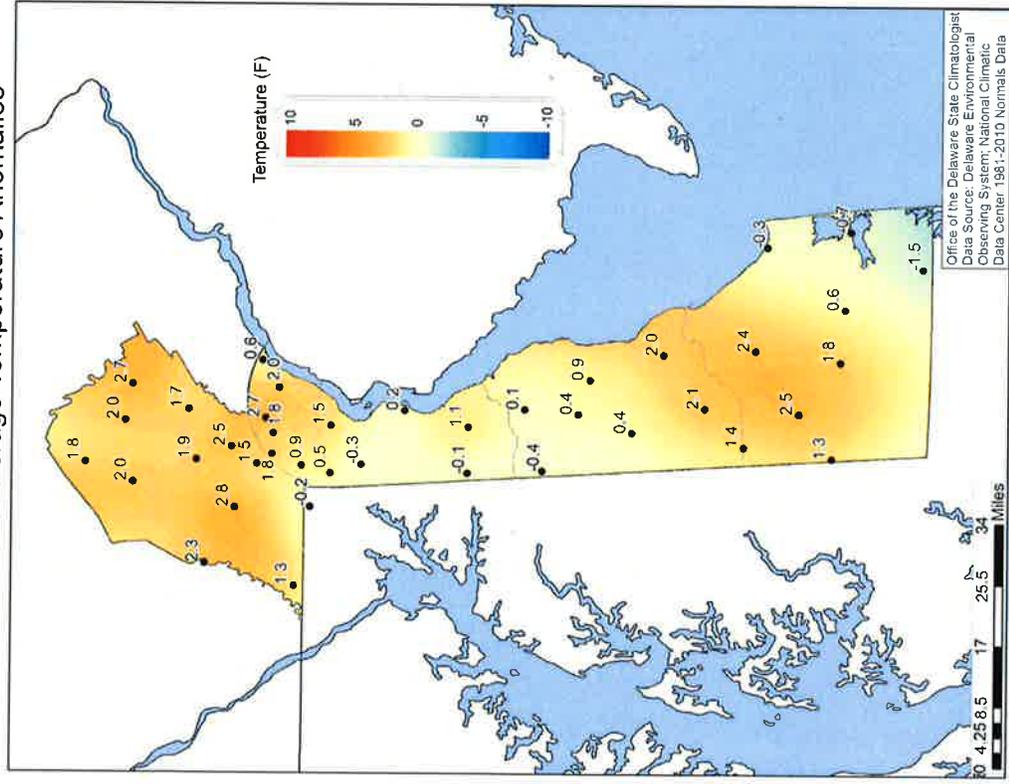
## 2016 Monthly Precipitation Anomalies



Eight months with below normal precipitation, no large monthly deficits however.

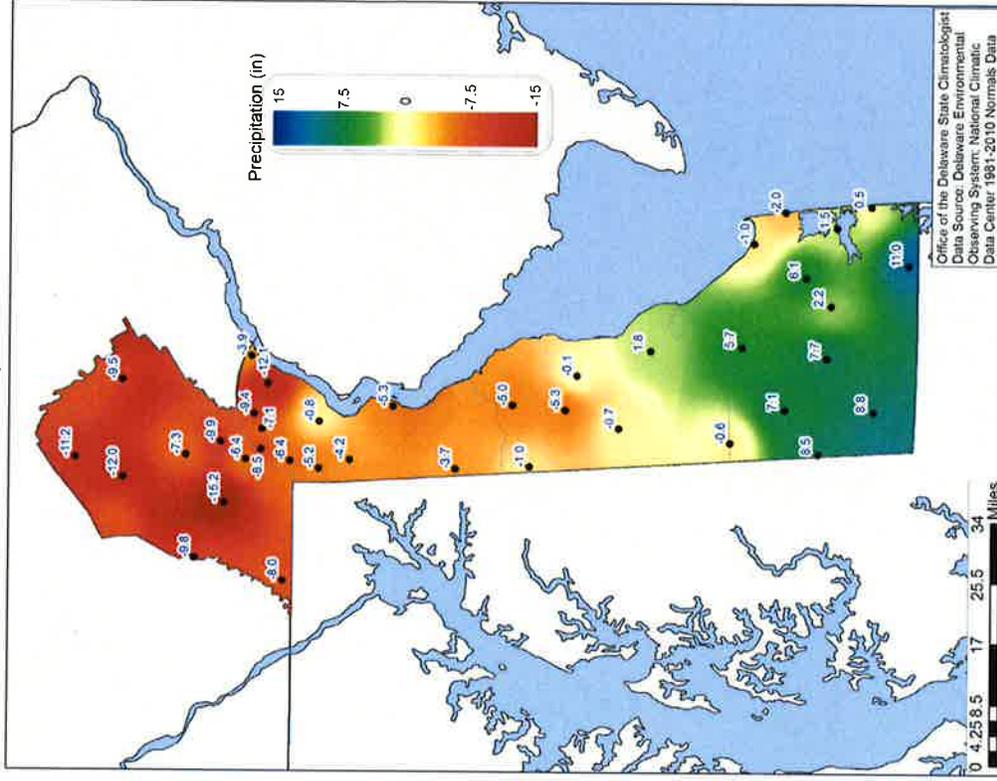
# 2016 Total Precipitation and Temperature Anomalies

## Annual 2016 Average Temperature Anomalies



2017\_01\_25 dc

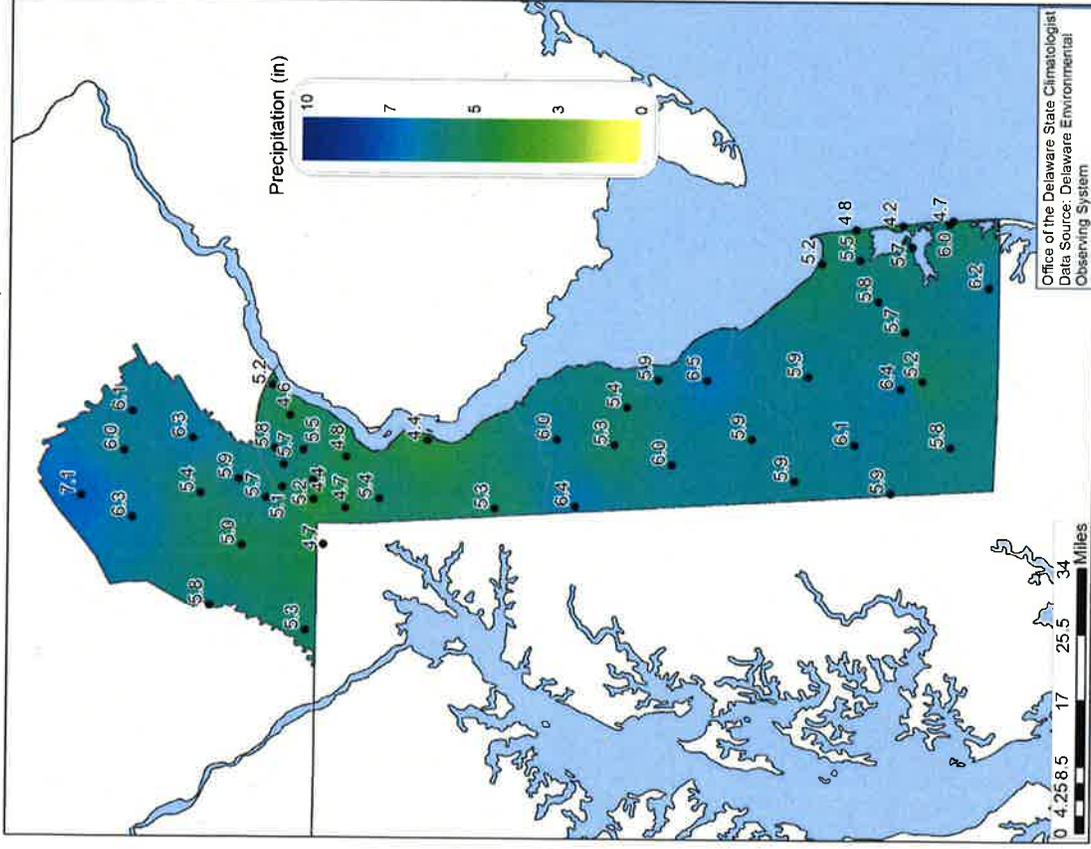
## 2016 Annual Precipitation Anomalies



2017\_01\_25 sah

# Precipitation Totals since December 1, 2016

12/01/2016 - 1/24/2017 Precipitation Totals



- Rainfall around 4.5 to 6.5 inches in the upper watersheds since 12/1/16
- Normal rainfall for Wilmington, DE for the same period is 6.84 inches.
- **Slightly below normal precipitation so far this winter**
- Near normal precipitation thus far in January 2017

Office of the Delaware State Climatologist  
Data Source: Delaware Environmental  
Observing System

**Forecast 1/26/17 through 02/8/17**

# 1 - 4 Day Outlook

**Thursday**



**40%**

Chance Showers

**High: 56 °F**

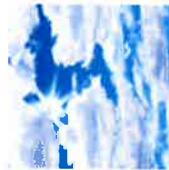
**Thursday Night**



Partly Cloudy

**Low: 32 °F**

**Friday**



Partly Sunny

**High: 40 °F**

**Friday Night**



Partly Cloudy

**Low: 27 °F**

**Saturday**



Mostly Sunny

**High: 38 °F**

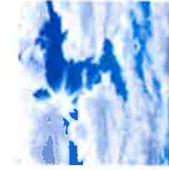
**Saturday Night**



Partly Cloudy

**Low: 28 °F**

**Sunday**



Partly Sunny

**High: 40 °F**

**Sunday Night**



**30%**

Chance Snow Showers

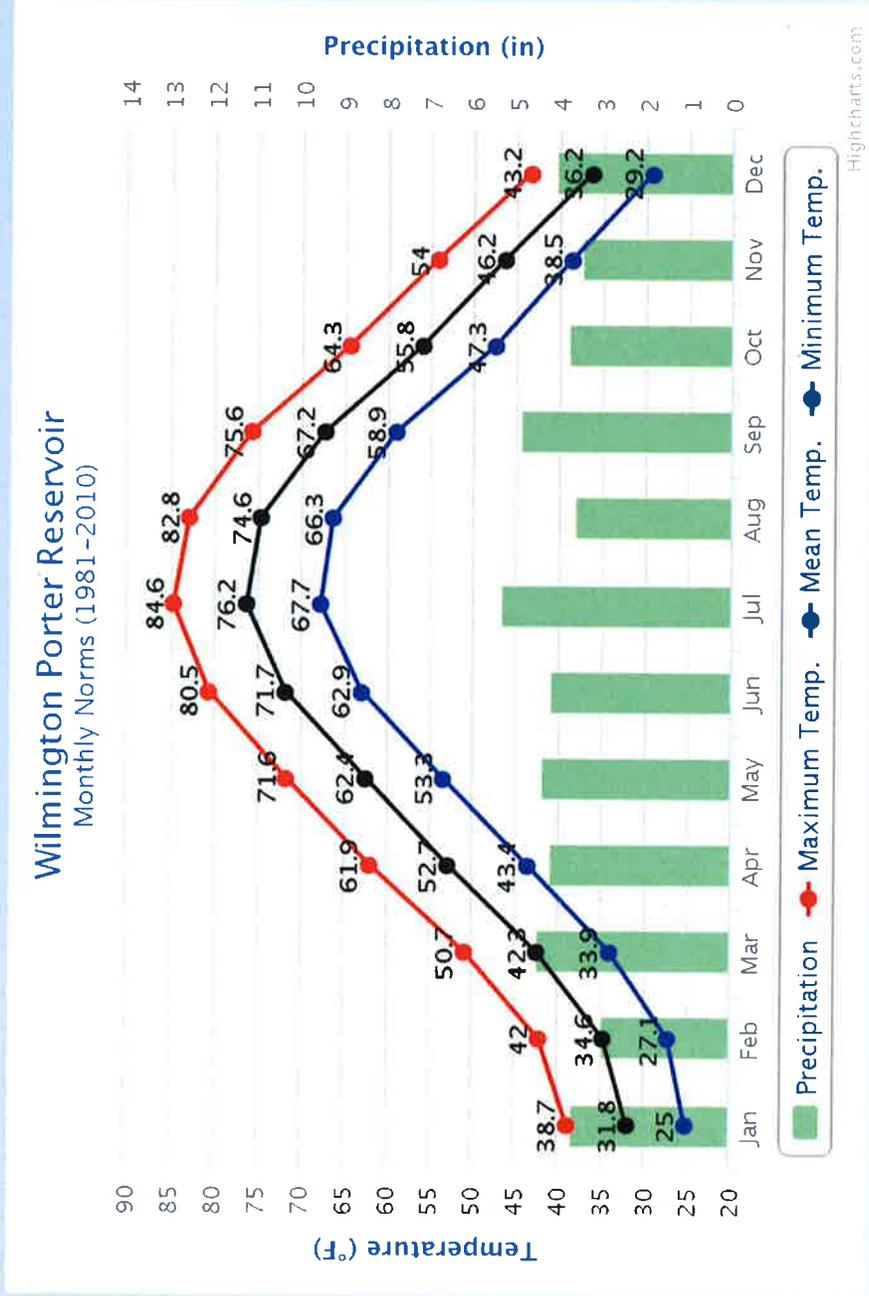
**Low: 25 °F**



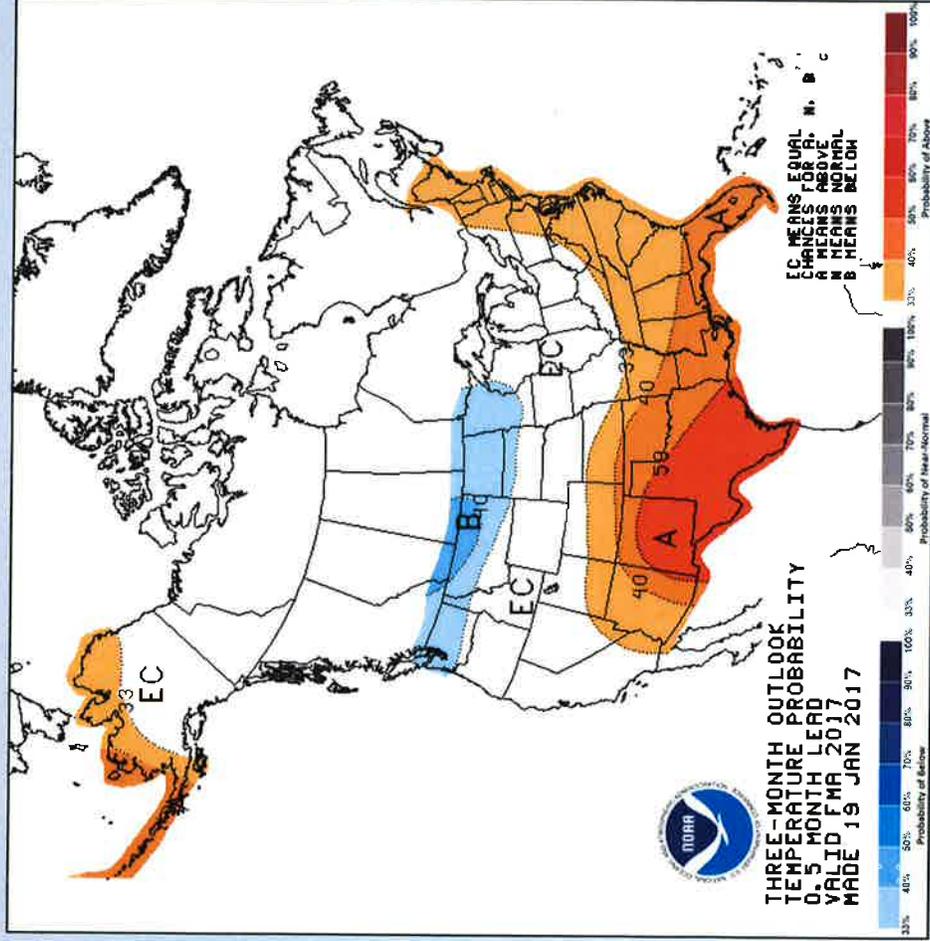


Precipitation forecasts show near normal conditions over the next 14 days.

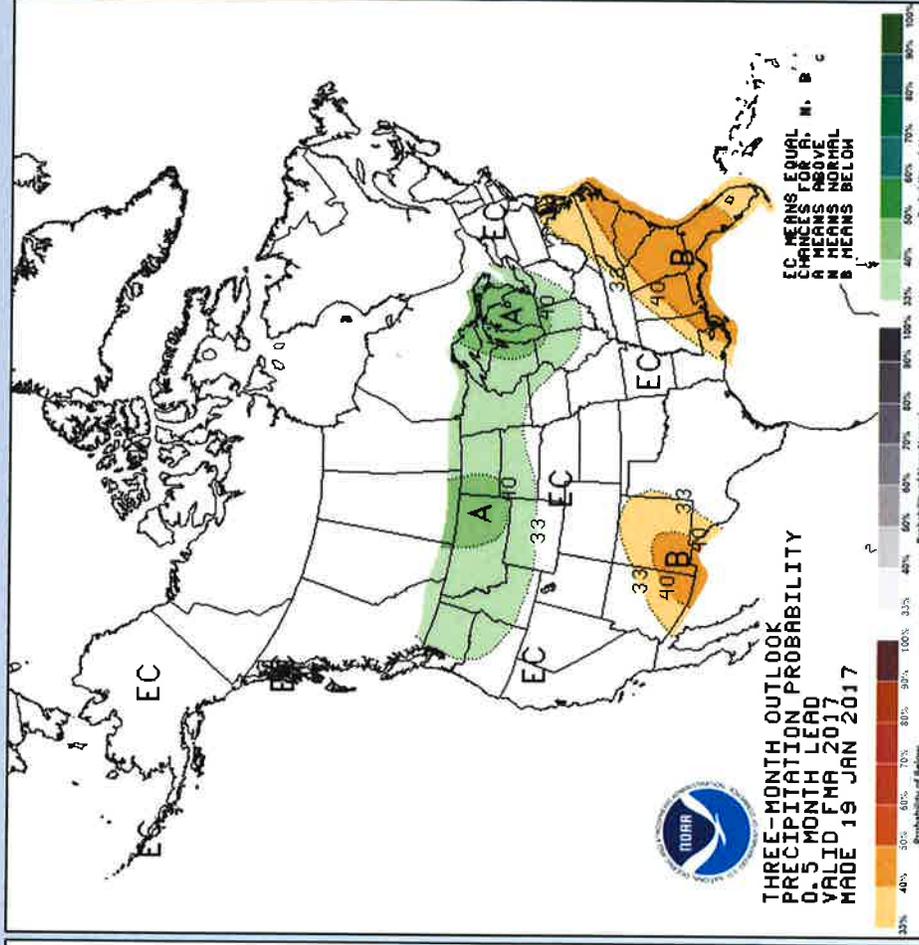
Normal precipitation for 14 days in January/February is approximately 1.75".



# Seasonal Outlook (valid February through April) Probability of warmer and drier than normal conditions favored...



Temperature



Precipitation

# Questions?

