

Project Background

Goal: Provide **relevant**, **accessible**, and **actionable** drought-related information to decision makers tailored to specific sectors

Official Title: *“Innovating Approaches to Drought Communications with North Carolina Decision Makers”*

Code Name: *Project Nighthawk*

The common nighthawk. Photo by Andy Reago and Chrissy McClarren, shared under CC BY 2.0.



Informed Consent

More information at <http://climate.ncsu.edu/nighthawk>

INNOVATING APPROACHES TO DROUGHT COMMUNICATIONS WITH NORTH CAROLINA DECISION MAKERS

Background | Why Nighthawk? | Objectives | Timeline | Our Partners | Funding Source | Contact Us | **For Participants**

Questions?

Project Nighthawk Phases

Fall 2018

Summer 2019

Phase 1

Identify

Refine priorities for new products with project partners and target audiences

Phase 2

Develop

Develop tailored information and communication prototypes

Phase 3

Evaluate & Refine

Assess prototypes with stakeholder assessment and engagement, refine and enhance information and communication deliverables

Phase 4

Implement & Integrate

Integrate and implement communication strategies

Phase 5

Evaluate

Evaluate project activities and outcomes

Water Resources Sector

Initial Project Survey

Sectoral Webinar

WRI Annual Conference

Agriculture/Forestry Sectors

Initial Project Survey

Sectoral Webinar

Extension Conference (TBD)



DMAC In-Person Meeting

Agriculture/Forestry and Water Resources Sectors

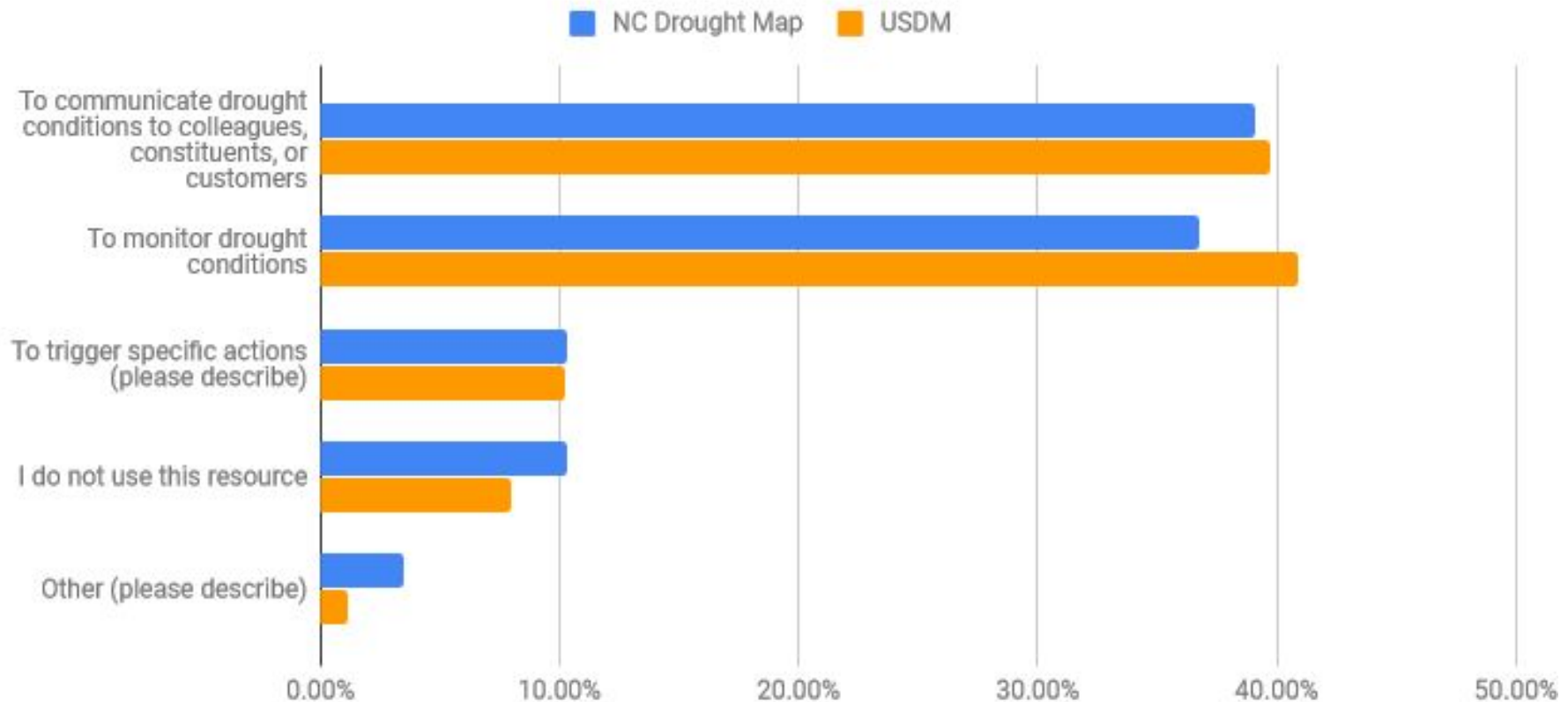
Combined Follow-Up Webinar

Final Project Survey

Key Project Tasks

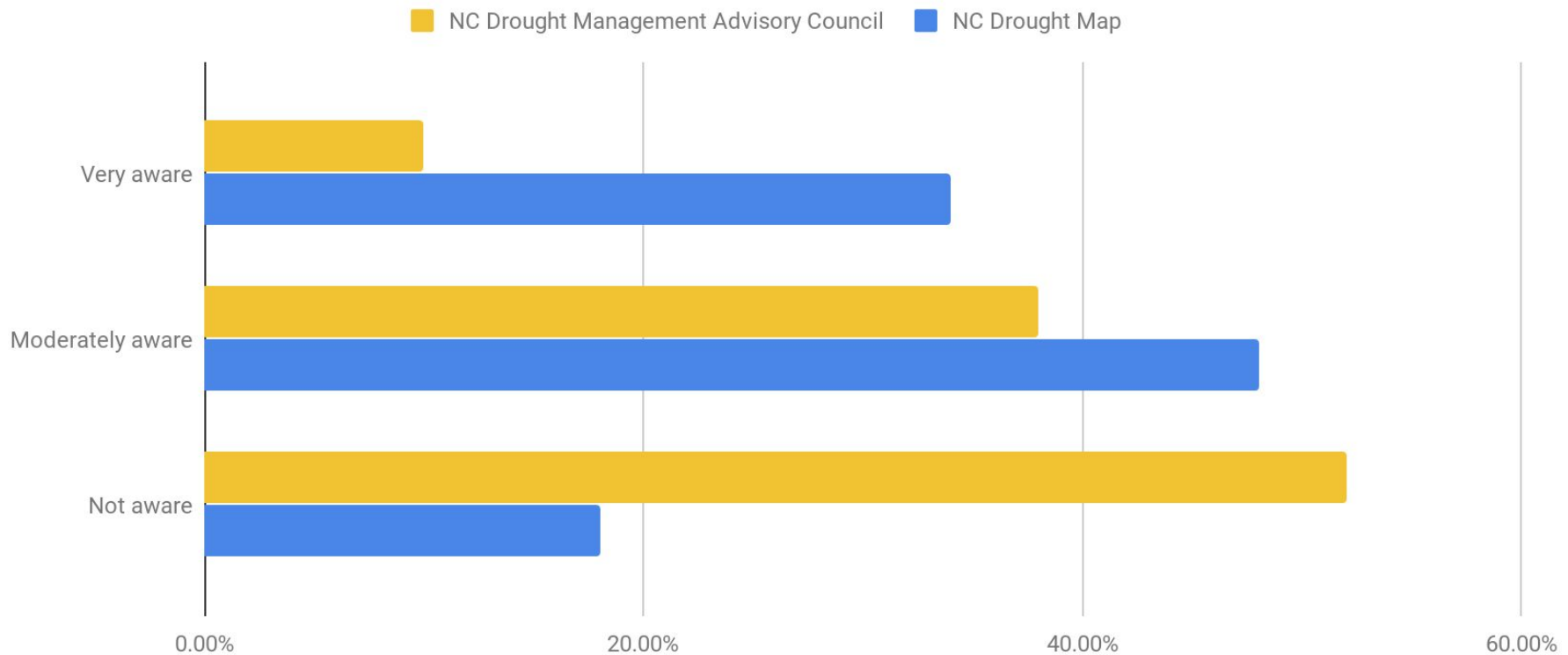
Selected Survey Results (Ag/Forestry)

Use of NC Drought Map and US Drought Monitor



Selected Survey Results (Ag/Forestry)

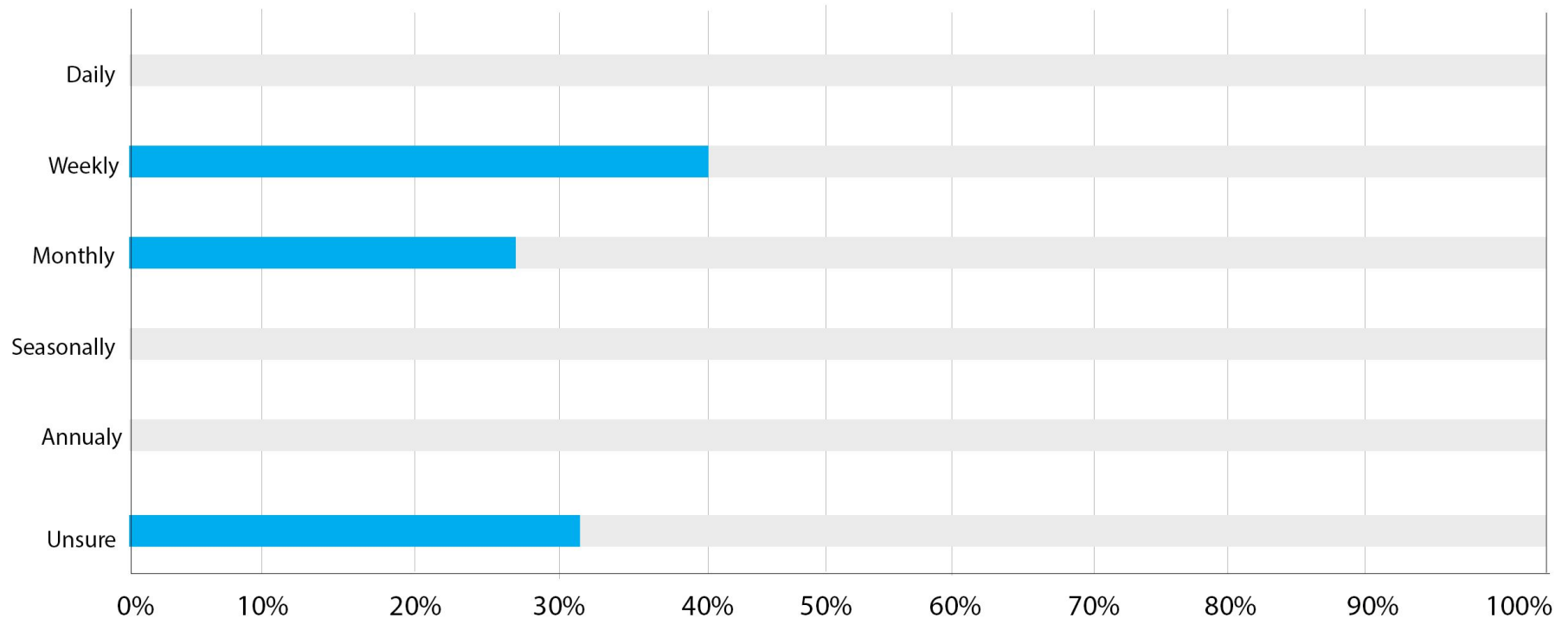
How aware are you of the NC DMAC and US Drought Monitor of North Carolina Map?



Selected Survey Results (Water Res.)

To your knowledge, how often is the US Drought Monitor updated?

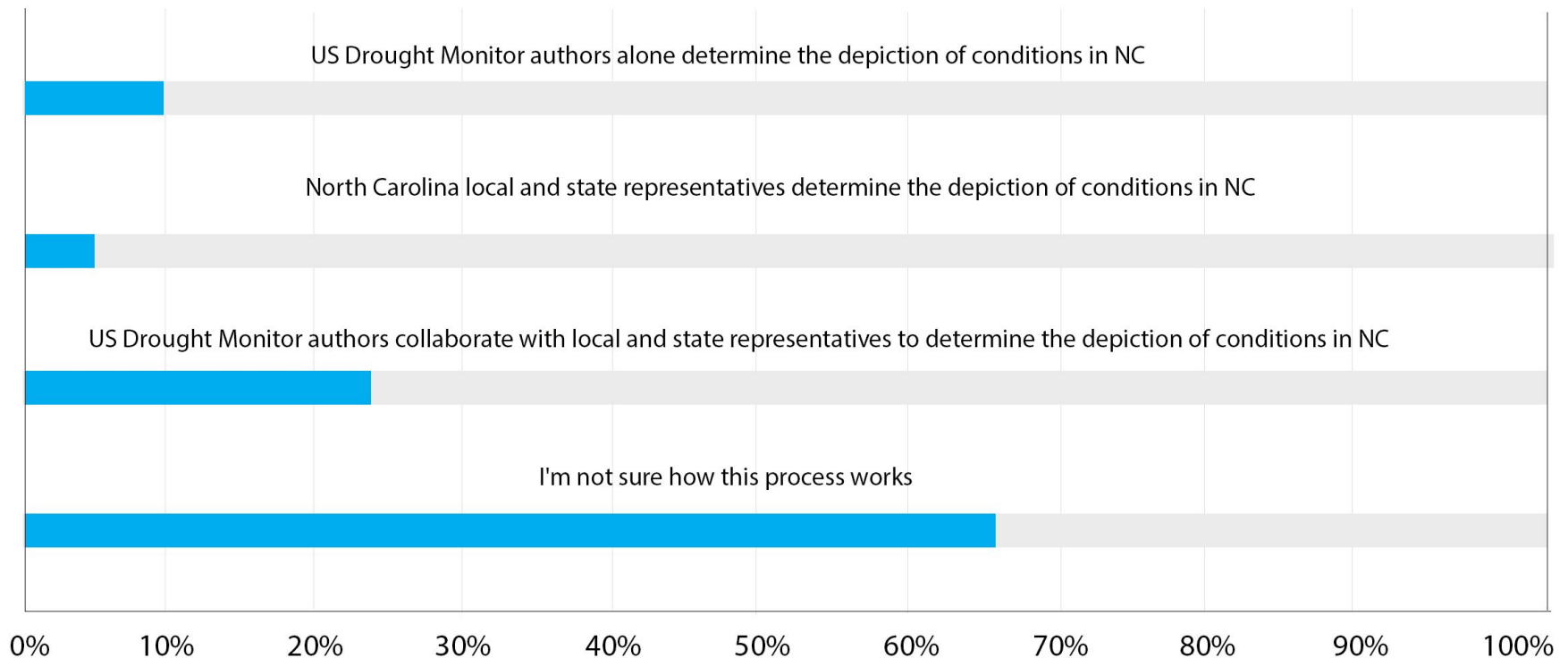
4.4



Selected Survey Results (Water Res.)

To your knowledge, what is the process by which this information is synthesized?

4.5



Phase 1 Takeaways

- The drought monitoring process needs more transparency
 - Who in NC is contributing to these maps?
 - What is the reasoning behind map changes?
- Users prefer partially translated information in a variety of formats
 - Including email alerts, factsheets, & infographics
 - Content both pushed to them and web-accessible

Prototypes and Ideas for Today's Discussion

1. Weekly drought overviews
2. "About the DMAC" resources
3. Possible updates to ncdrought.org

Weekly Drought Overviews

Goal: Provide insights into the DMAC and USDM discussions for release alongside each week's map

Components:

- Blog post summaries
- Email alerts/notifications
- Infographics

Blog Post Example

Moderate Drought Expands Across the Piedmont

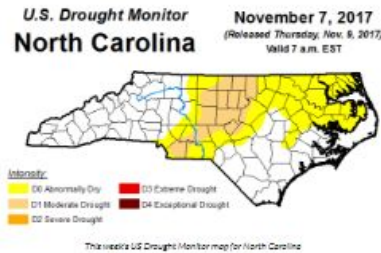
Posted on November 9, 2017 by Corey Davis

Another dry week in central and eastern North Carolina has led to expansion of Abnormally Dry and Moderate Drought conditions on the US Drought Monitor.

The multi-agency [North Carolina Drought Management Advisory Council](#) (NC DMAC) reviewed recent conditions on Tuesday afternoon and provided input to the US Drought Monitor author, including recommendations for the following changes on this week's map:

- Moderate Drought (D1) conditions were added to parts of Rockingham, Guilford, Randolph, and Stanly counties in the central Piedmont, including the cities of Greensboro, Asheboro, and Reidsville.
- Moderate Drought was also expanded to cover northern Wake County in the Falls Lake area.
- Abnormally Dry (D0) conditions were introduced into Lenoir County, including the city of Kinston.

These changes were based on a number of objective indicators that show the increase in dryness across the state:



A Lack of Rainfall

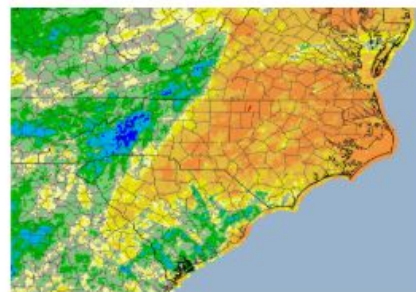
Precipitation was largely limited to the Mountains over the past 7 days. A shower over Rockingham County brought about half an inch of rain to Reidsville, but it was still yet another below-normal week. Elsewhere in the Piedmont and Coastal Plain, most locations received no rain at all.



Total precipitation from November 1-7, 2017; from the Integrated Water Portal

A Sharp Precipitation Divide

Wet in the west and dry in the east has been the recent trend across North Carolina. Over the past 60 days, much of the Mountains has received above-normal rainfall - including from the remnants of Hurricane Irma - while parts of the Piedmont and Coastal Plain have seen just 25 to 50% of their normal precipitation.



Percent of normal precipitation for the 60 days ending on November 7, 2017; from the Integrated Water Portal

A Lack of Rainfall

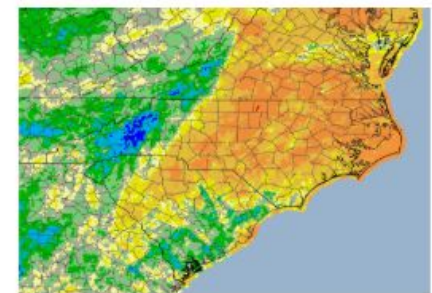
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Struggling Streams

The lack of recent rainfall has caused streamflows to decline, especially in the northern and central Piedmont. Monitoring sites along the Cape Fear River at Lillington, Pittsboro, and Gibsonville have all had their 28-day average streamflows drop into the much below normal range.

28-Day Average Streamflow Levels



Explanation - Percentile classes					
Low	<10	10-24	25-75	76-99	High
Wettest 10%	Wettest 25%	Wettest 50%	Wettest 75%	Wettest 90%	Wettest 95%

Lakes Levels Lowering

Reservoirs across the Piedmont are also feeling the effects of the recent dry weather. Falls Lake, Jordan Lake, and Kerr Lake have all fallen more than two feet below their target levels, according to the US Army Corps of Engineers. That decline began in the late summer but has accelerated recently due to the lack of rainfall, especially in the upper Cape Fear River basin.



Falls Lake levels (pink) compared to targets (blue line) since late July; from [www.LakeLevels.info](#)

Infographic Examples

North Carolina Drought Update For the week ending March 28, 2017

This Week's Drought Monitor of North Carolina Map

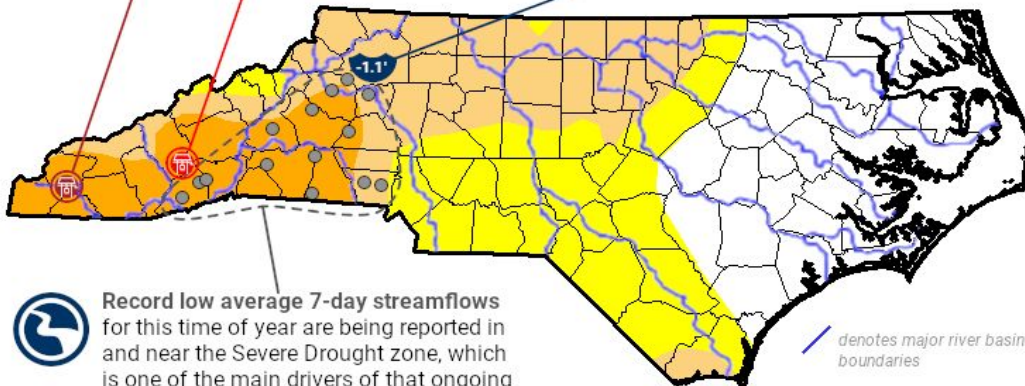
From the US Drought Monitor, authored by Eric Luebehusen (USDA) with input from the North Carolina Drought Management Advisory Council



Last week's rains brought **limited groundwater recovery** in the Mountains; wells remain **much below normal** or at **record lows** for this date



Lakes in the Mountains and Piedmont are mostly near or above target levels, but **W. Kerr Scott Reservoir** is about **one foot below guide curve**



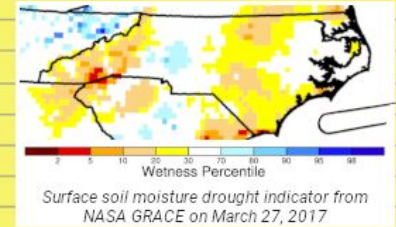
Record low average 7-day streamflows for this time of year are being reported in and near the Severe Drought zone, which is one of the main drivers of that ongoing drought classification

denotes major river basin boundaries

Water Resources Summary

Notes about this week's drought map

- Up to **3 inches of rain** last week in the Mountains led to improvement from **Severe to Moderate Drought** in several counties
- Less than a half-inch** of rain fell in eastern NC, with **Moderate Drought** expanding into Brunswick Co.
- Soil moisture levels** (right) are lowest in the Mountains and northern Piedmont



Drought Monitor Intensity:

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

This infographic is a product of



<http://climate.ncsu.edu/nighthawk>

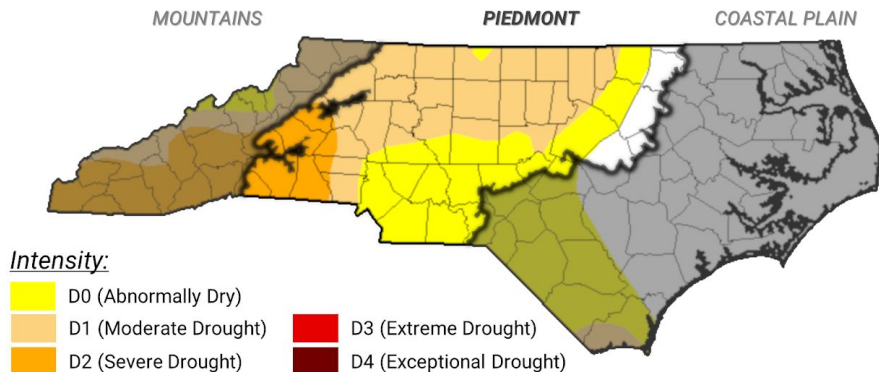


Infographic Examples

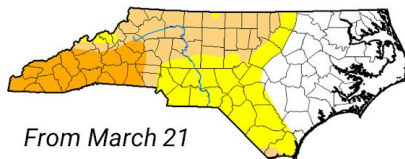
North Carolina Drought Update For the week ending March 28, 2017

This Week's Drought Monitor of North Carolina Map

From the US Drought Monitor, authored by Eric Luebehusen (USDA) with input from the North Carolina Drought Management Advisory Council



Last Week's Drought Map



This infographic is a product of



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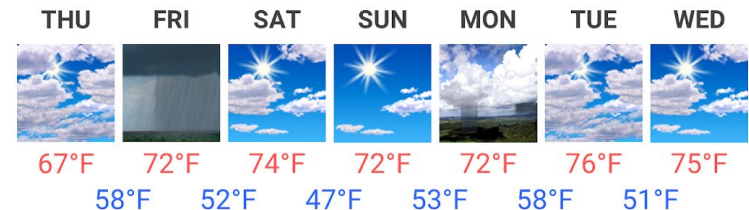
<http://climate.ncsu.edu/nighthawk>

Piedmont Summary

- The northern Piedmont remains in **Moderate Drought** as streamflows and soil moisture levels continue to decline
- After a week with little to no rainfall, the southeastern Piedmont is still **Abnormally Dry**, but is being monitored for further degradation
- Reservoirs across the region remain at or near normal levels

Weather Outlook for the Week of Thu., Mar. 30

Forecast guidance from the National Weather Service



Friday: A cold front will bring a chance of rain, mainly in the northern counties. **Monday:** Pop-up showers and thunderstorms are possible in the afternoon.

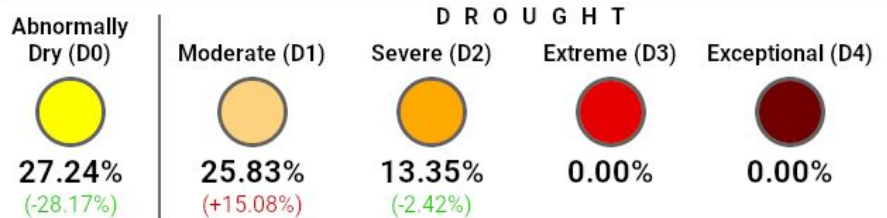
Infographic Examples

North Carolina Drought Update For the month of March 2017

Drought Monitor of NC Map, Released Mar. 28, 2017

From the US Drought Monitor, authored by Eric Luebehusen (USDA) with input from the North Carolina Drought Management Advisory Council

Current Coverage and Changes Since Feb. 28



Mountains improve, but drought persists

Severe Drought was upgraded to Moderate Drought in parts of the Mountains that received up to **3 inches of rain** last week, including northern Haywood and Swain counties.

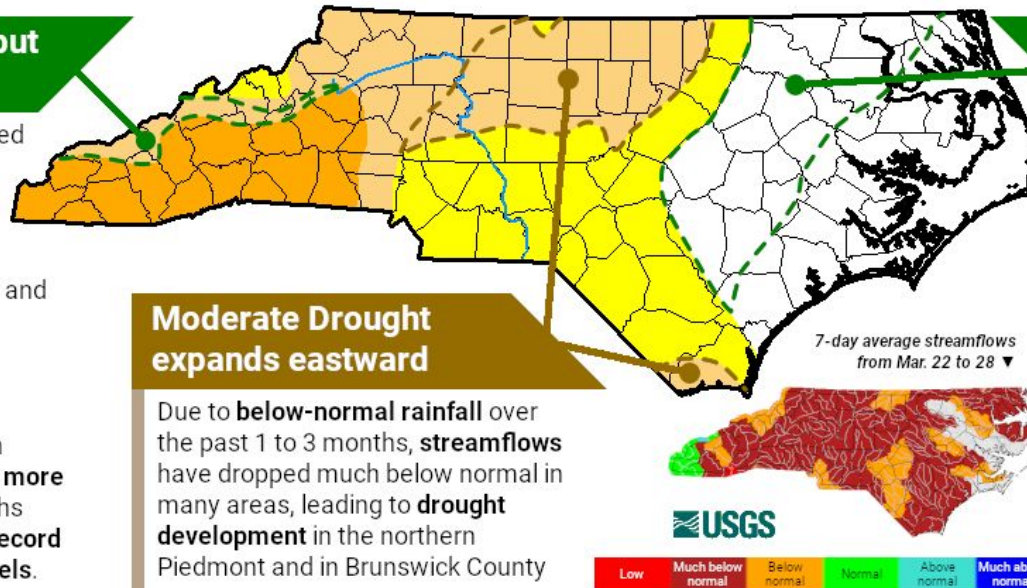
However, Severe Drought remains in the southern Mountains, which have seen **precipitation deficits of 4 or more inches** over the past 3 months and continue to have **near-record low monthly streamflow levels**.

Moderate Drought expands eastward

Due to **below-normal rainfall** over the past 1 to 3 months, **streamflows** have dropped much below normal in many areas, leading to **drought development** in the northern Piedmont and in Brunswick County

Northern coast no longer Abnormally Dry

A **wet start to March** replenished **soil moisture** and **groundwater** levels, especially north and east of Rocky Mount



This infographic is a product of

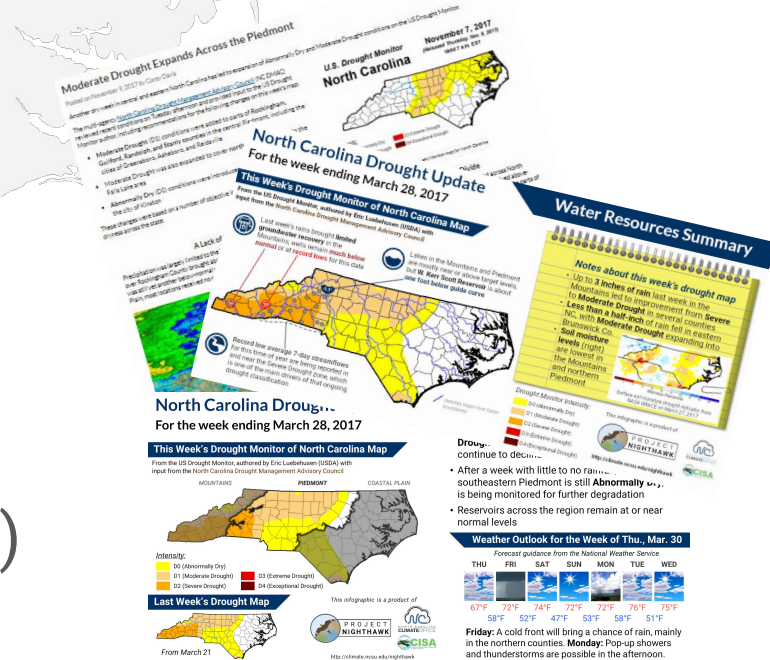


<http://climate.ncsu.edu/nighthawk>



Drought Overviews - Logistics

- Short-term: create and share with a pilot group?
- Long-term: Who would “own” and create these?
- Where would these “live”?
 - Websites (SCONC, DMAC, others?)
 - Social Media (whose account?)



“About the DMAC” Resources

Goal: Provide background information about the NC DMAC and its history, membership, and weekly drought monitoring process

Possible Approaches:

- Infographics
- Story maps
- Updated content for ncdrought.org

"About the DMAC" Resources

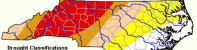
North Carolina Drought Management Advisory Council History

A main purpose of the DMAC is to provide consistent and accurate information on drought conditions in the state to the U.S. Drought Monitor, the Environmental Management Commission, the Secretary of the Department of Environment and Natural Resources, the Environmental Review Commission, and the public.

1998-2003 Drought

Statewide drought heavily impacted the forestry and agriculture industries. More than 200 municipalities were under some sort of water conservation efforts.

October 15, 2002



Drought Designations

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

2007-2008 Drought

North Carolina experienced one of the worst droughts in its modern history. At its peak in December 2007, the U.S. Drought Monitor classified 60% of the state in Exceptional Drought. Visible impacts could be seen across NC, such as low levels in Falls Lake (pictured below, image from Southeast Regional Climate Center).



Who serves on the NC DMAC?



“About the DMAC” Resources

Resource Development:

- SCONC can create “static” products as part of Project Nighthawk
 - Who from the DMAC is willing to review them?

Getting the Message Out:

- How can we share these?
 - Who can share? Share with whom?
- Where should these ultimately “live”?

Project Nighthawk Next Steps

Phase 4

Implement & Integrate

Integrate
and
implement
communication
strategies

- Revise prototypes based on Phase 3 feedback
- Complete “About the DMAC” resources and share for review
- Begin testing Weekly Drought Updates, assuming weekly drought calls resume
 - Seeking representatives from each sector to receive these and share feedback

Project Nighthawk Next Steps

Phase 5

Evaluate

Evaluate project activities and outcomes

- This summer and fall, we'll evaluate what we've done
- Seeking additional feedback opportunities for ag, forestry, and water resources
 - Could you recommend any conferences or events to attend for *your* sector?

Agriculture/Forestry and Water Resources Sectors

Combined Follow-Up Webinar

Final Project Survey



Questions or Suggestions?

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