Announcements;
- If WebEx crashes, this meeting will be rescheduled for next week.
- Note that this meeting is being recorded for later posting.
- Please hold questions till the end to ensure we have time to cover all material.
I. Introductions of Presenters and Agenda - Tom O’Donovan, Director, Water Division, NHDES and Chair, DMT

II. Key aspects of the 2016 drought - Tom O’Donovan and DES Water Division

III. Overview of Drought Management in New Hampshire – Brandon Kernen, NHDES

IV. Current Drought and Forecast for New Hampshire, Mary Stampone, UNH – State Climatologist

V. Drought Impacts;
   a. Rivers and Streams, Ted Diers, Administrator, Watershed Bureau, Water Division, NHDES
   b. Reservoirs, Jim Gallagher, Administrator, Dam Bureau, Water Division, NHDES
   c. Groundwater – Shane Csiki, NHGS
   d. Drinking Water, Brandon Kernen, Assistant Administrator, DWGB, Water Division, NHDES
   e. Agriculture, TBD
   f. Other as appropriate

VI. Ongoing actions – Tom O’Donovan and DES Water Division

VII. Drought Management Team Discussion (input from all Drought Management Team participants)
   a. Recommended responses to any specific impacts
   b. Recommended public messaging
   c. Next steps
   d. Next session; proposed for 6 August 2020
II. Key aspects of the 2016 drought

Lake levels and Stream flow, Reservoir Management

Failing water supply wells (private & public)

Public water supply shortages

Restricting outdoor water use

Impacts on business, industry

Roadside withdrawals by tanker trucks & Well refill by Tanker Trucks

Fire danger

Crop loss
NH Drought Management Plan

- Technical criteria updated by UNH in 2014
- Drought Management Plan Updated in 2015 – Stakeholder review in 2012
- Developed as an annex for the State’s Emergency Operation Plan
- Coordinated by NHDES
- Administered by a Drought Management Team (DMT)
  - More than 30 entities
  - Government/Water Supply/Business/Recreation
NH Drought Management Team (DMT)

1) Assembles after a sustained moderate drought is occurring

2) Assesses data and makes drought classification determination for each management area

3) Determines and provides public relations messaging

4) Makes recommendations to each other, State agencies and Governor

5) Assists in capturing economic damage and other impacts

6) Forum for information sharing and collaboration
Legal Mechanisms to Address Drought

• Large groundwater withdrawal permits – reduce withdrawals based on phase of drought
• Emergency authority to approve new large groundwater withdrawals
• Municipal authority to restrict or ban residential lawn watering during drought (applies to public and residential wells)
• Authority to require dam owners to release water
• Authority to require a public water system to extend service to address a nearby emergency
IV. Current Drought and Forecast for New Hampshire

May 26, 2020

July 8, 2020

**U.S. Drought Monitor**

*New Hampshire*

June 30 - July 8, 2020

**Intensity:**
- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

**http://droughtmonitor.unl.edu/**

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“D0” Persists (from 6/16)

Drought Improvement (from 6/23)
IV. Current Drought and Forecast for New Hampshire

Drought onset:
- 3-month precipitation < 75% of normal
- 3-month SPI & PSDI < 0.0 (D1)
- 3-month EDDI > 80% percentile (D1)

3-month EDDI: Changes during the 30 days ending on July 3, 2020

Temperature driven increase in evaporative demand.

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought
IV. Current Drought and Forecast for New Hampshire

Streamflow, groundwater, & vegetation conditions moderate to severe by end of June.
July improvements:
• 7-day precipitation above normal
• 7-day streamflow near normal
• Groundwater status near normal
• 7-day rain forecast for 1.5” – 2.5”
IV. Current Drought and Forecast for New Hampshire

July 8, 2020

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*Year-to-date precipitation deficits across southern NH 75%-100% of normal.*
Drought likely to persist through July:
- Chance for below normal precipitation
- Above normal temperature likely
V. Drought Impacts, Rivers and Streams, Ted Diers, Administrator, Watershed Bureau, Water Division, NHDES
Instream Flow Program

- Applies in Lamprey and Souhegan Watersheds
- Conservation practices
- Watering restrictions
- Move from surface to groundwater sources
- Relief pulses in Lamprey watershed

![Diagram of Lamprey Relief Pulse Test December 3-5, 2012]

- Average flow for 48 hours
- Base flow level
- Relief Pulse period

V. Drought Impacts, Rivers and Streams, Ted Diers, Administrator, Watershed Bureau, Water Division, NHDES
V. b. Drought Impacts, Reservoirs. Jim Gallagher, Administrator, Dams Bureau, Water Division, NHDES
Groundwater Level Data in New Hampshire (Percentile Classes)
June 2020

Legend

NHGS Wells
- Low (<10%), Overburden
- Below Normal (10-24%), Overburden
- Normal (25-75%), Overburden
- Not Analyzed, Overburden
- Below Normal (10-24%), Bedrock
- Normal (25-75%), Bedrock
- Not Analyzed, Bedrock

USGS Wells
- Below Normal (10-24%)
- Normal (25-75%)

US Drought Monitor
- D0 (Abnormally Dry)
- D1 (Moderate Drought)

County Boundaries

* - Not analyzed - Well has <10 years of record to generate percentile statistics
Known Water Use Restrictions
Last Updated: June 25, 2020

Legend
- County Boundary
- Town Boundary
- Municipality or Water System Status
  - Mandatory Restriction
  - Voluntary Restriction

Drought Condition
- Abnormally Dry
- Moderate Drought
- Severe Drought
- Extreme Drought

Known Water Use Restrictions
Last Updated: July 9, 2020

Legend
- County Boundary
- Town Boundary
- Municipality or Water System Status
  - Mandatory Restriction
  - Voluntary Restriction

Drought Condition
- Abnormally Dry
- Moderate Drought
- Severe Drought
- Extreme Drought
Drought Assistance for Residential Wells

- Answer calls from residential well owners
- Conservation tips
- Well failure symptoms
- Well improvement options
- Well Information
- Licensed well drillers and pump installers
- Financial Assistance – USDA loan/grant for very low income households
- Coordinate with local officials to establish emergency water sources
  - NHDES conducts testing if the source is not a public water system
  - Guidelines & prohibitions on “filling” dry wells with bulk water
- Compile data on drought impacted areas, remedies sought and financial burden
Private Well Financial Assistance Program for Very-Low Income Households

The United States Department of Agriculture Rural Development can provide loans to very-low-income homeowners to repair, improve or modernize their homes, as well as to remove health and safety hazards.

- $20,000 loan at 1% interest
- $7,500 grant for those over 62

Funds may be used for:
- New Well Construction
- Well Pump Installation
- May **Not** Be Used for Hydro-fracturing

Eligibility based on family income being <50% of area’s median income
Drought Assistance for Municipalities and Public Water Systems

- Drought condition summary
- Water use restriction examples
- Tools available for implementing voluntary and mandatory restrictions
- Promote relationship between towns and community water systems.
- Weekly emails to community water systems updating them on the status of drought and providing recommendations and resources.
The Division of Agricultural Development compiles market information and publishes the Weekly Market Bulletin for the agriculture community.

The Bulletin is the department's "publication of record" and includes appropriate industry notices, announcements, seasonal information and market survey data. The Bulletin is a subscription publication and is available by mail, or secure internet. For subscription information call (603) 271-2505.

How to Subscribe to the Weekly Market Bulletin
You may choose to access the Weekly Market Bulletin by either logging into a secure website or receiving it by US mail. Subscription prices are $22 for the online version and $28 for US mail.

You may sign up for the Weekly Market Bulletin by calling our office at (603) 271-2505 and providing a credit card for payment. You may also visit our office at 25 Capitol Street, Concord, or mail in your request with a check. Be prepared to provide your address, phone number, and if you are requesting an online subscription, an email address.

Use this handy form to provide your subscription information.

When it's time to renew your subscription, you will receive a postcard reminder in the mail. You must then call, visit or email the NH Department of Agriculture, Markets & Food at (603) 271-2505 with your request and payment. For Agr 502.01 (e), the department shall not refund the price, or any part of the price, of a subscription to the Bulletin.

Advertising in the Weekly Market Bulletin
Subscribers may advertise farm equipment, livestock and farm supplies in the bulletin for no additional charge. For rules regarding Weekly Market Bulletin advertising (PART Agr 501), call (603) 271-1324.

Only current subscribers may place an advertisement in the bulletin!

When sending in an advertisement, please email them to marketbulletin@agr.nh.gov, or mail them to WMB, NH Dept of Agriculture, Markets & Food, PO Box 2042, Concord, NH 03302. You may also fax your ad to (603) 271-1109. We must have the ad in writing to place it in the Bulletin.

When submitting an advertisement to be included in the bulletin, please make sure to include the following required information:

- Your name
- Subscription Number (online subscribers, please also indicate you are an "online subscriber")
- Subscription Expiration Date (not necessary for online subscriber)
- New Hampshire telephone number (no out of state cell or home phone numbers will be accepted)
VI. Ongoing Actions - Water Division, NHDES

Informing and Messaging

NH Drought Management Team (DMT)

- NH Governor’s Office
- Ski NH
- NH Department of Natural & Cultural Resources
- NH Water Council
- NH Department of Health and Human Services
- NH Health Officer’s Association
- NH Geological Survey
- NH Department of Agriculture, Markets and Food
- NH Department of Environmental Services
- US Army Corps of Engineers
- NH Municipal Association
- NH Public Utilities Commission
- NH Office of Energy and Planning
- City of Portsmouth
- University of New Hampshire
- City of Keene
- National Oceanic and Atmospheric Administration
- NH Fish and Game Department
- US Department of Agriculture
- NH Farm Bureau Federation
- US Geological Survey
- NH Business and Industry Association
- NH Water Works Association
- City of Manchester
- Eversource
- City of Manchester
- Granite State Rural Water Association
- City of Concord
- NH Department of Safety
- NH Housing Finance Authority
- RCAP Solutions, Inc.
- Skillings & Sons Inc.
- NH Golf Course Superintendent Association

1. Please follow NH Department of Environmental Services
   - Twitter
   - Facebook
   - Instagram

2. Share NHDES drought related posts

3. Create your own drought posts and include #nhdrought
VI. Ongoing Actions - Water Division, NHDES

Informing and Messaging

Daily Fire Danger

Water Division, NHDES

State of New Hampshire Forest Protection Bureau

FIRE WEATHER CLASS DAY

Visit our website on the Daily Fire Weather email.

The forest fire season has started and the Daily Fire Weather email will be sent each morning. The email will provide information on fire danger, weather conditions, fire restrictions, and the best ways to stay safe.

You can find the Daily Fire Weather email in your inbox every morning. It provides important information to help you stay safe during the fire season.

Understanding Fire Danger

Fire Danger is a complex phenomenon that involves the interaction of multiple factors. The fire danger rating system helps to evaluate the potential for fire activity and helps to determine the appropriate level of fire protection.

National Fire Danger Rating System ( NFDRS)

Many federal and state agencies use the National Fire Danger Rating System (NFDRS) to assess the fire danger. NFDRS is a computer-based system that uses meteorological data and other factors to predict the potential for fire activity.

Drought Management Program

The Drought Management Program is a collaborative effort between federal, state, and local partners to monitor and manage drought conditions across the United States.

Select drought information and links to other relevant resources.
VII. Drought Management Team Discussion
(input from all Drought Management Team participants)

a. Recommended responses to any specific impacts
b. Recommended public messaging
c. Next steps
d. Next session; proposed for 6 August 2020
For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can affect depictions of flow conditions.

Duration hydrograph of 20-day average runoff for New Hampshire

Additional Information

- USGS daily streamflow data

Drought Emergency in New Hampshire Impact Reporting

• Drought impacts on residential wells can be reported using forms on NHDES’ Drought webpage

• Well drillers report deepened or replaced wells to NHDES (90 day reporting deadline)

• Water systems report water emergencies/water use restrictions/bulk water shipments