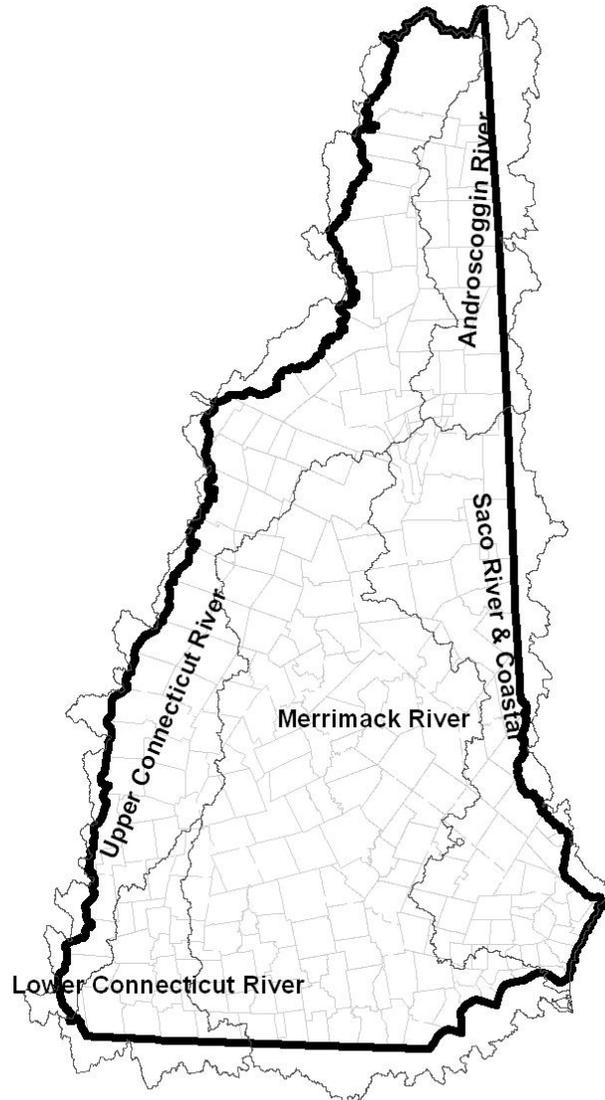


Discussion Guide

May 8, 2012



What needs to be done to have enough clean water for future generations?

A statewide conversation about the future of our water

Compiled by NH *Listens* for the Governor's Water Sustainability Commission

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Welcome - Thank you for joining today's conversation!

We look forward to listening to your questions, concerns, ideas and hopes for the future of water in the state of NH and we welcome all perspectives. The Governor's Water Sustainability Commission has asked NH Listens to create the opportunity for NH residents to engage in an informed and productive conversation – we are not pushing a particular agenda or set of solutions, but are seeking to engage many people in order to gather ideas, experiences, and recommendations for the future of our state's water. This kind of conversation (taking place in five locations across the state) helps augment the traditional forms of government and problem solving. Your input will be compiled and shared by NH Listens with The Governor's Water Sustainability Commission and with all of you. NH Listens works at the state and local level to help convene conversations about complex issues. We don't take a position on issues but work to create a fair and open process for everyone.

The Governor's Water Sustainability Commission is working to identify strategies and management measures for ensuring that the quality and quantity of New Hampshire's water in 25 years is as good as or better than they are now.

NH Listens, a civic engagement initiative of the University of New Hampshire Carsey Institute brings people together for engaged conversations and informed community solutions. Our sessions are open to all community members. Conversations are being hosted in the following locations:

- Berlin - White Mountains Community College
- Greenland - Hugh Gregg Coastal Conservation Center at Great Bay Discovery Center
- Manchester - Manchester Water Works
- New London –Tracy Memorial Library
- Keene - Keene State College, Young Student Center

Here is a general outline of our evening:

5:30 – 6:00 PM	Registration
6:00	Welcome
6:10	Small group conversations
8:35	Large group reporting out
8:55 PM	Next steps and closing

This guide is the same for participants and facilitators. Your facilitator will help guide the conversation but we are all responsible for making sure the group is productive. Thank you!

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Detailed Outline

5:30 - 6:00 Registration

- Welcome and sign in at registration table
- Please join your small group circle for the introduction and to start the dialogue immediately thereafter.

6:00 - 6:10 Welcome

- Welcome from NH Listens Host –
 - Background of this event
 - ***The goal of this conversation is to:***
 - Provide an open, facilitated conversation in which to get informed about water trends in the state and to identify and discuss the challenges and concerns you have for ensuring the quality and quantity of water for future generations.
- About the process: This conversation is...
 - Designed to generate information and identify common ground
 - Designed for participants to be here the whole time (please do what you need to do to be most present: phones, breaks, restrooms)
 - About a constructive focus – not about looking back at how things might have been done differently but about looking forward to desired actions and solutions
- Group agreements for a productive conversation...
 - Share “air time”
 - If you disagree, consider asking a question rather than arguing to prove your point
 - It’s OK to disagree, but don’t personalize it. Stick to the issue, not the person who is disagreeing with you
 - Speak up if the process doesn’t seem fair
 - Speak for yourself, not for others and not for an entire group (use “I” statements)
 - Personal stories stay in the group unless we all agree we can share them outside of the group
 - We all share responsibility for making the group productive
 - Be respectful and use respectful language
 - Respect the facilitator’s role
 - Listen first...

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6:10 - 6:30 Introductions in small groups

- Facilitator introduces him/herself and explains the role of the facilitator:
 - to help with the process
 - to serve as a reminder of our agreements to be fair and respectful, and
 - to make sure everyone gets a chance to participate

- Reminder: your group will need someone to **report out** for the group and to **take notes** for your Group Report, both of which you can decide now or after the group gets a chance to get to know each other a bit.

- Participants introduce themselves... Please share your
 - Name
 - One or two “hats” you wear in the community (business owner, parent with kids in schools, active in community organization/church, student, etc.)

We usually do two rounds of introductions in a Listens group. The first is a warm up but the second generally asks us to slow down a bit and share information about the topic that is important to you.

- Take a few moments to reflect; to gather your thoughts, maybe jot down 2-3 sentences/phrases in response to **ONE** of these questions:
 - *Describe a story or experience that illustrates how water has played an important role in your life in New Hampshire...*
 - *What is it that is important to you that you are here on a weekday talking about water for 3 hours?*

- When ready, **try to be concise**, yet this is important and not something to rush through – it helps us to hear more stories. **Ask if anyone would like to go first...**

After these stories, consider any commonalities or differences you hear. We are exploring together how people experience water as a resource for multiple uses - for drinking, recreation, wildlife, business, and tourism in New Hampshire.

6:30 - 6:40 Initial Thoughts about Importance of Water

We will spend the next few minutes brainstorming all of the ways we experience the importance of water and what issues we think are the most important topics to discuss.

- **Spend about 10 minutes brainstorming a list: How is water important to you and to our state now and in the future?**



Group Report: *List all of the ways participants see water as important.*

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6:40 - 7:20**Information Review**

Before our break, take the time to look over the discussion guide and the information provided about water sustainability in NH. This is a lot of information but is not meant to be all inclusive. Note each challenge area. We will focus time on each one. Take a few minutes to read and allow for clarifying questions.

There are pages of research on water in NH so we realize this can be overwhelming. For our purposes, we will be asking you “*what do you notice?*” or “*what is most important to you about this information?*” No one is expected to absorb all of this information tonight.

What do you notice? A brainstorm

To simplify a very complicated topic, we will **take each challenge in turn** and ask you about each: What do you notice? What is most important to you about the information? We will do this briefly by challenge and then when we return from a break we will determine how best to spend our discussion time based on what you find important.

Challenge 1: Changing patterns of land use and water use

Challenge 2: Changing precipitation and temperature patterns

Challenge 3: Aging and inadequate water infrastructure

Challenge 4: Need to manage water differently in a new era

Challenge 5: Financial and Political Limitations



Group Report: *Finalize a list of the key topics raised by your group for each challenge area and note the issues your group wants to address/discuss.*

7:20 BREAK - Please come back to the small group at 7:30

7:30 - 7:45**Patterns and Biggest Challenges**

Next, consider the framing question: *What needs to be done to have enough clean water for future generations?* Given your priorities when you came in and the information we have just reviewed, what are the **most important topics and issues** to be discussed? Do you see any patterns across the challenges? What is the root cause of the issues you identify?

You might use some of the questions listed below to elicit group responses:

- What is the biggest challenge that we need to address?
- Do you feel that our waters are threatened in any way?
- How would you describe the key roles of water in our state?
- Are there competing uses now for our water and do you expect them to change over the next 25 years?
- What, if anything, do we owe to future generations regarding safe, clean, usable water?
- What are the primary values you hold regarding water and water sustainability?

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7:45 - 8:15 Values and Priorities

Based on the key issues your group has identified, you can choose to talk more in depth about a few more focused issues. If your group seems stuck here, it is ok to continue to identify a variety of solutions to a variety of issues (see below, questions for actions over 25 years). The group decides. If one or two topics are of interest, help the group first explore all of the aspects of the issue (what are the issues, barriers, challenges, opportunities related to this topic?).

What action needs to be taken over the next 25 years:

1. How can we ensure there is enough water for *all* uses in the future? Should we?
2. Who do you believe is responsible to ensure safe, clean and sustainable water resources for the next 25 years?
3. Who should make the investment in water infrastructure (our public water systems for drinking and wastewater) to ensure safe, healthy, clean and sustainable water for our state?
4. Are you willing to make changes at home, work and in recreation to ensure clean water is available in the future? What do you do presently to achieve this at home? What would you be willing to do?
5. Are you willing to act now (and/or pay) for safe, clean and sustainable water in the future?
6. What needs to be done to ensure that water is safe, clean and available for all uses?

Next, ask the group to focus on **actions that would move NH forward** on the issue they have identified. What are the fundamental values at hand? Chart these solutions and then move to final priorities and insights.

8:15-8:35 Final Priorities

Based on the conversations, you will ask, “Are there any common ground recommendations or key ideas in this group? If so, what do we want to say at the end of the day? If not, what diverse points of view do we want to convey?” Remind the group that a single consensus is not required, but if one emerges, or perhaps if the group wants to put forward two or three primary points of view, that is fine. Use whatever techniques you think appropriate to arrive at conclusions.



Group Report: *What are your group’s specific recommendations for having enough clean water for future generations?*

Your group will need to prioritize their top insights, etc. to report out to large group and *select someone to speak*. The reporting out should include **one or two** specific action statements. To arrive at this point, the group should take a step back and look for *both the unique ideas and those that seemed to recur*. Group ideas together that seem to be related, but don’t lose track of the unique ones. Your role is to help the group transform the brainstorming list into a workable, organized set of 1-2 key ideas to report out.

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Group Report: *Please add any additional information that your group feels is important to pass along to the Governor's Water Sustainability Commission.*

8:35 – 8:55 Reporting Out

Each group will be asked to provide a brief summary of their most important findings, concerns or recommendations. If asked to speak for your group, please be brief and share what has been compiled *by your group*. Please refrain from editorial comment as your views should be representing the group results.

8:55 – 9:00 Wrap up comments – Site host

- Thank you
- Next steps
- If you want to be involved – sign ups on GWSC table
- **Please fill out the evaluation – it matters to us! We read these and always work to incorporate your feedback. Thank you!**

***Funding for the NH Listens Sessions on Water Sustainability
was provided by the New Hampshire Charitable Foundation.***

Special thanks to:

New Hampshire Rivers Council
Great Bay Discovery Center

Thank you to our site hosts:

White Mountains Community College
Manchester Water Works
Tracy Memorial Library
Hugh Gregg Coastal Conservation Center
Keene State College

Water Sustainability Commission

<http://www.nh.gov/water-sustainability/>

Please note: A Gathering for Water Professionals is being hosted by the Governor's Water Sustainability Commission on June 19th in the Concord area from 2:00 – 5:00 PM. For more information please contact the Commission.

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4. Please add any additional information that your group feels is important to pass along to the Governor's Water Sustainability Commission:

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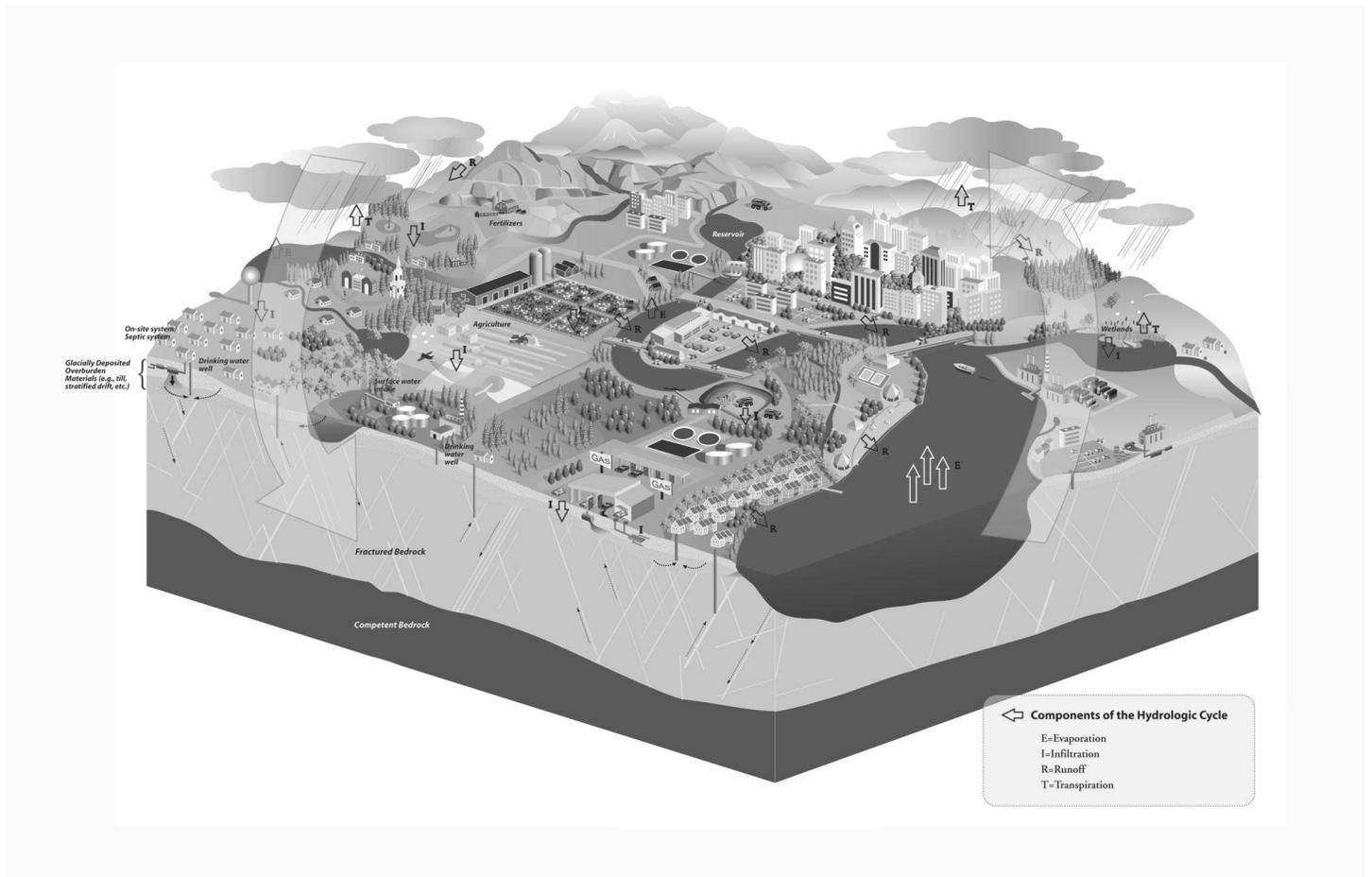
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Water in New Hampshire – Background Information

This information has been compiled to provide background on the challenges and issues facing New Hampshire’s future water sustainability. It is not meant to be exhaustive and is used for the purposes of learning from everyday citizens what is noticeable and of interest to them. Unless noted, this information has been adapted from the NH Water Resources Primer published in 2008. The full document and much more information are available at: <http://www.nh.gov/water-sustainability/>.

Overview

The water running through, over and by New Hampshire has shaped the state’s history and will influence its future. Over the last decade New Hampshire has been the fastest growing New England state. Hundreds of thousands of visitors come to New Hampshire each year to enjoy the state’s beautiful lakes, rivers and coast in the summer and its ski areas, snowmobile trails and ice-fishing spots in the winter. Whether it is needed for drinking, manufacturing, recreation, waste assimilation or ecosystem health, water is a cornerstone of New Hampshire’s beauty and prosperity, and wise management and protection of water resources is critical to New Hampshire’s economy, public health and environment.



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Four Primary Water Challenges

Challenge 1: Changing Patterns of Land Use and Water Use

Water use continues to increase over time with the state's growing population, increase in economic activity and landscape changes, impacting both water quality and availability.

Increasing Water Use

- The population growth rate for NH is projected to be 28 percent between 2000 and 2025. The number of towns classified as rural will drop to 72 by 2025, down from 139 in 1970. (http://nhlgc.org/publications/item_detail.asp?TCArticleID=371)
- Of the 260,000 people expected to move to NH by 2030, 73% of them are expected to live in one of the four southeastern counties.
- The increasing population will result in more land development and more demand for water.
- Of the 211 million gallons of drinking water used per day, 127 million gallons are extracted from surface water and 84 million gallons are extracted from ground water.

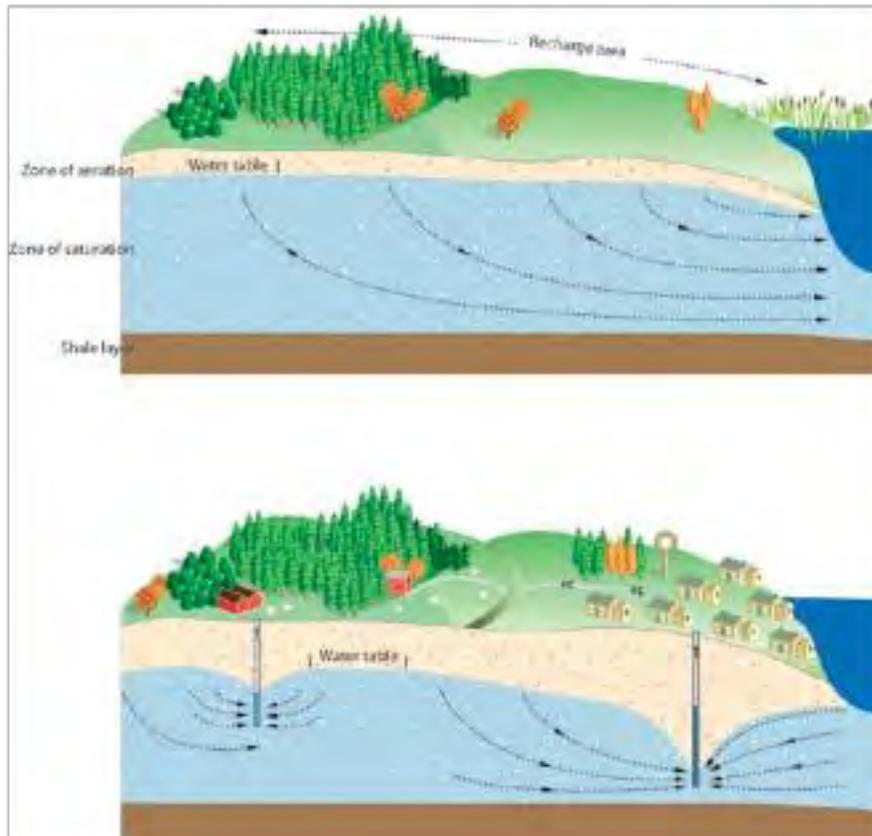


Figure 4-4. Wells withdrawing large volumes of water can have detrimental effects by depleting both groundwater and nearby surface waters. In this case, the well reverses the direction of base flow, in effect drying up local streams and possibly pulling surface water contaminants closer to the well. Source: Ground Water Protection Council, 2007; Artwork by Poshen Wang.

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- Community water systems, which supply water to homes, businesses and institutions, are the largest users of all water (and surface water) in the state.
- Cumulatively, self-supplied domestic water use, typically individual private wells, represents the largest use of groundwater in NH.
- Indoor use varies but is still around 70 gallons per day, half of which is going to toilets and clothes washers.
- Increased droughts, coupled with population growth in other parts of country/world may intensify demands for water from water-rich regions (e.g. NH)
- Although New Hampshire's growth has slowed recently, trends suggest future growth comes with a greater need for water than historic development.
- Increased demand for NH water from outside of NH and the region is anticipated.

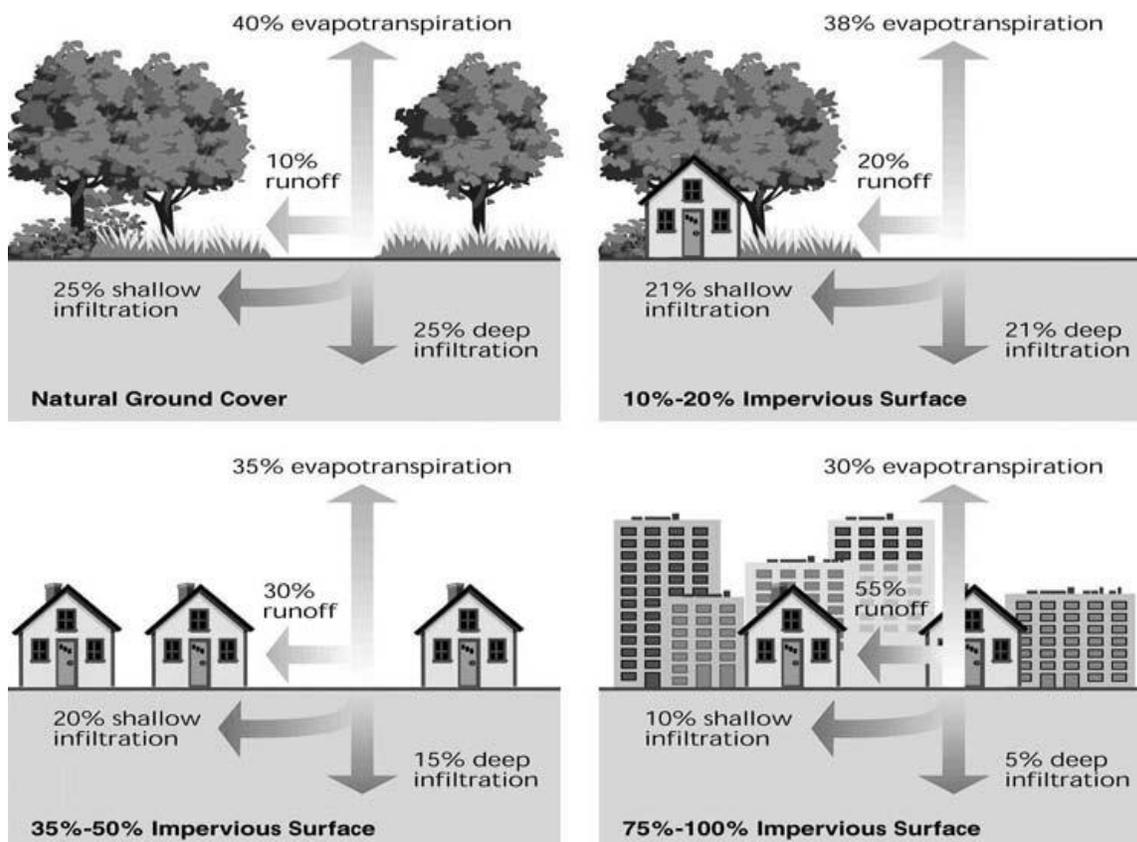
Landscape Change and Managing Stormwater

- Long-term trends show that an average of 13,500 acres of NH forest is converted to other uses each year.
- Declining forest cover in water supply watersheds is linked with lower water quality and increased water treatment costs.
- The NH Department of Environmental Services (DES) estimates that one acre of impervious surface where runoff is routed to surface water removes an estimated 250,000 to 500,000 gallons of water each year that would have otherwise replenished groundwater.
- Changes in the landscape means many more buildings, roads, driveways, and parking lot areas – all of which create impervious surfaces.

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- The most obvious effect of increased imperviousness is increased flooding because less water can soak into the ground.
- The stormwater problem has frequently been described as “death by 1,000 cuts” because we all contribute to the problem.
- A recent study by DES showed that of the estimated 16,750 miles of rivers and streams in the state’s surface water supply watersheds (representing 80% of the state’s total area) only 5 percent are substantially protected by local ordinances; 7 percent by the Shoreland Water Quality Protection Act; and 25 percent by permanent protection measures such as the White Mountain National Forest, state parks, and other conservation lands.

Challenge 2: Impacts of changing precipitation and temperature patterns

New Hampshire, like most of the continental US has already experienced a statistically significant trend toward increasingly frequent storms, more intense storms, and warmer temperatures.

Increases in water pollution problems

- Warmer water holds less dissolved oxygen, makes survival of native cold-water fish such as trout less likely.
- Warmer water fosters algal blooms and changes the toxicity of some pollutants. Therefore, even if pollution levels are stable, the number of impaired and threatened waters is likely to increase.

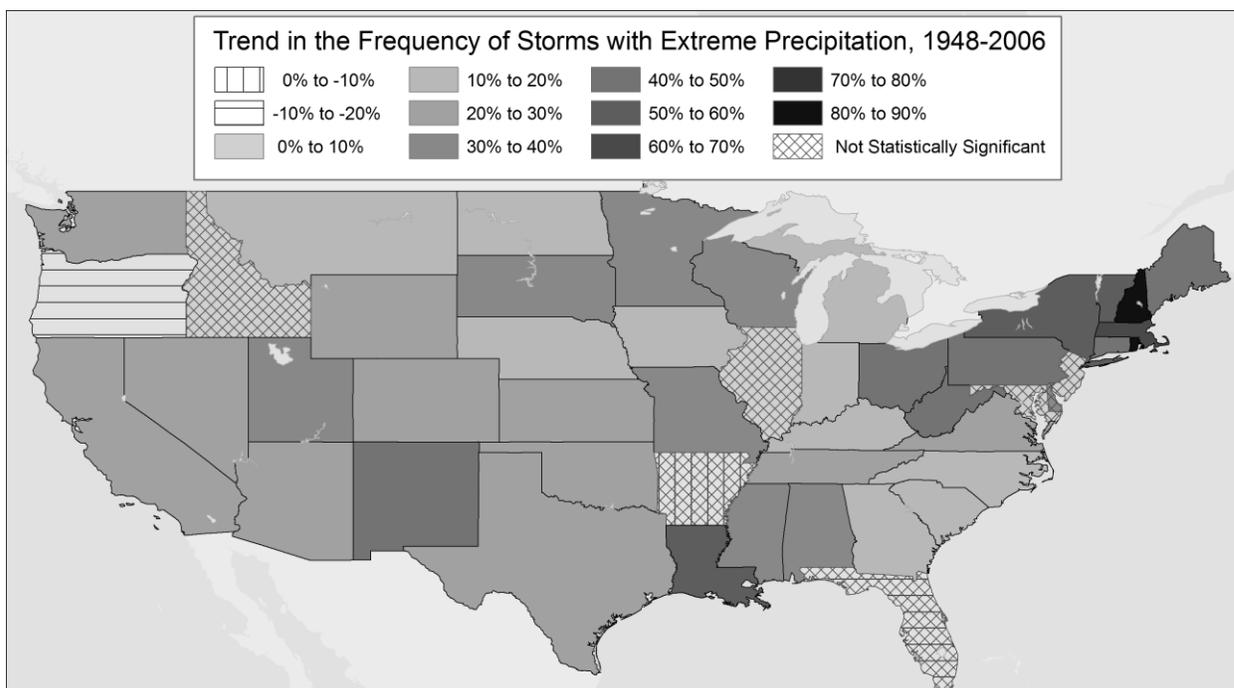
More Extreme water-related events

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- Heavier precipitation will increase the risks of flooding; expand floodplains, increase variability and velocity of streamflows, and increase erosion.
- Increases in intense rainfall result in more nutrients, pathogens, and toxins being washed into water bodies.



Changes to availability of water supplies

- Increased water loss due to evaporation and longer growing seasons as a result of warmer air temperatures means less water available for drinking water and for uses such as agriculture, industry, and energy production.

Changes in Water Bodies and Shorelines

- Changing flows in lakes and streams will affect the size of wetlands and lakes.
- Changes include sea level rise, increased damage from floods and storms, changes in water supplies, and increasing temperature and acidification of the oceans.

Challenge 3: Aging and inadequate water infrastructure

The initial investment in water infrastructure (water supply systems, sewage systems, dams, stormwater networks) was made long ago and the programs that provided much of the money is no longer available to maintain and improve much of this infrastructure. This circumstance affects drinking water, wastewater, stormwater, and dams.

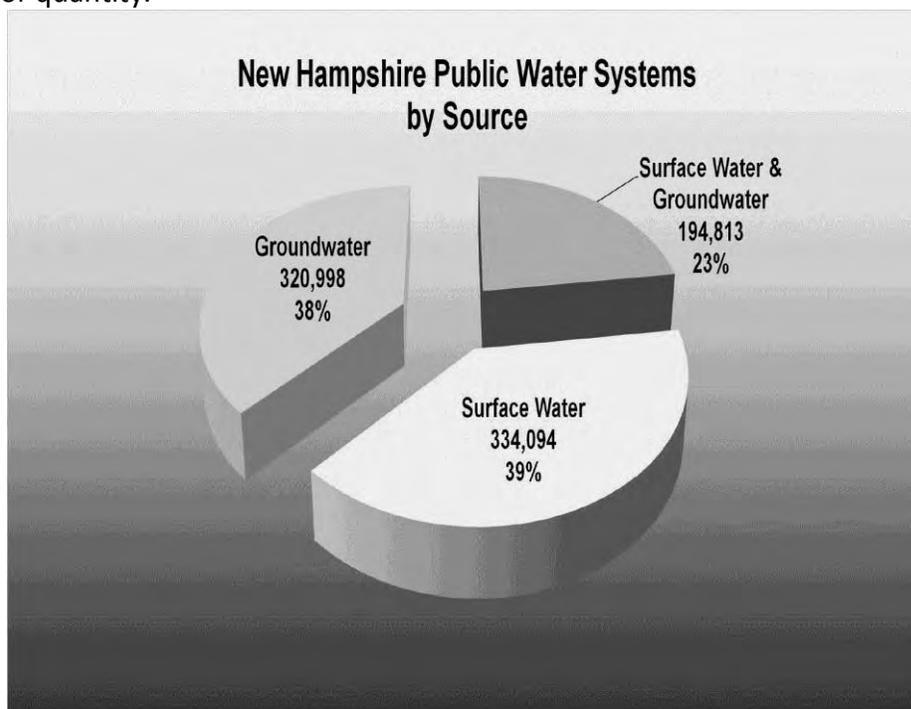
Drinking water

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- For most municipalities, the water infrastructure needs to be upgraded over the next 10 – 15 years to ensure capacity. The amount of federal monies available is much less than what is necessary.
- A commission that is studying funding issues related to water infrastructure in NH estimated in 2010 that \$2.3 billion in investments is needed over the next decade.
- Contamination in private residential wells, including naturally occurring contamination (e.g., radon and arsenic) is difficult to monitor or regulate. There are no clear requirements for minimum well water quality or quantity.



Wastewater

- As of 2007, 25% of municipal wastewater treatment plants were operating at about 80% or more of their capacity.

Stormwater

- Research focusing on the Northeast has found that 35 % of culverts in some watersheds will be too small due to changing precipitation patterns, resulting in more frequent and expensive wash-outs during storms.
- Current analysis estimates capital costs for stormwater needs statewide of just over \$182.6 million.

Dams

- There are 3,070 dams in NH that must be maintained to keep them safe.
- There are 2,358 privately owned dams in NH.
- The state owns 273 dams, utilities own 12, municipalities 389, and 38 are owned by the federal government.
- Many were built years ago for mills that no longer exist; According to studies, removal would mean significant improvement for many areas.

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Challenge 4: Information Needed to Manage Water Differently in a New Era

Key information needs to be obtained and new ways of coordinating across state, local and regional entities will be critical in future watershed management.

Coordination Needed

- Planning and management needs to be coordinated between local, state and regional entities on a watershed basis

Information Needed for Informed Decisions

- New and updated information on water quantity and quality needs to be collected, analyzed and incorporated into planning, management and decision-making processes
- *There is a need for information on/from:*
 - Stream gauges
 - River morphology (shape over time)
 - Well information
 - Surface water quality
 - Groundwater quality and information on naturally occurring contaminants (such as arsenic, radionuclides, fluoride, beryllium, etc. This information would be used to promote increased private well testing in high risk areas.
 - Lake carrying capacity
 - Invasive species and more comprehensive mapping of known infestations
 - Updated flood maps
 - Cost estimates of producing clean and available water
 - Data on cumulative impacts (wells on groundwater, withdrawals on river systems, etc.)

Need to Adapt New Principles for Decision Making

- It is recommended that decision-making and regulatory processes need to be based on principles of adaptive management and the precautionary principle.
 - Adaptive management is a structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time through system monitoring.
 - The precautionary principle implies there is a social responsibility to protect the public from exposure to harm, particularly until proven NOT harmful.

Challenge 5: Financial and Political Limitations

In addition to the challenges identified in the *Water Resources Primer*, the Water Sustainability Commission has identified the following challenges:

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- ◆ The financial investments needed for water are significant and represent a tremendous barrier to effective water management.
- ◆ Currently, what we pay for water services (water supply and wastewater disposal) do not reflect the full costs of providing those services, leading in some cases to over-use of water.
- ◆ There is a need for a coordinated constituency for water that will continue to build the understanding and awareness on NH citizens about their role and responsibility in water management and to help develop and support public policy, programs, and investments that will ensure the future quality and availability of NH's water.
- ◆ Public policy for water management is complicated by the fact that water boundaries do not coincide with political boundaries.

In Summary

The Governor's Water Sustainability Commission will present a set of recommendations regarding sustainable management of the state's water resources and infrastructure in September 2012. The following is a summary of preliminary recommendations presented in the *NH Water Resources Primer*, which was prepared at the request of the NH Legislature's Water Resources Committee in 2008. Specific recommendations may be found in the *Primer* and in subsequent reports of several commissions which have since addressed specific issues such as stormwater management and infrastructure financing.

General recommendations include the need for:

- Improve knowledge – data characterization and evaluation
- Increase water use efficiency
- Improve land use patterns – directing development
- Improve stormwater management
- Adapt to changing patterns of precipitation
- Address infrastructure needs
- Improve integration of protection programs
- Shift towards watershed/regional vs. municipal planning and regulation
- Increase emergency preparedness

Definitions of Key Terms and Acronyms

Groundwater - The water beneath the surface of the land. In New Hampshire, groundwater resides within bedrock fractures and between particles of soil, sediment, and loose rock that lie on top of bedrock. The upper boundary of an underground area that is completely filled with water is called the "water table."

Surface Water - Surface waters include rivers, lakes, ponds, tidal waters, perennial (year-round) and seasonal streams, marshes, swamps, wetlands and other bodies of water, natural or artificial.

Stormwater - The water from rain or melting snow that does not soak into the ground. Stormwater can become polluted when it runs off streets, lawns, farms, and construction and industrial sites if there are fertilizers, dirt, pesticides, oil and grease, or other pollutants in its path.

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Impervious surfaces – Surfaces that prevent rain or melting snow from soaking into the ground, such as rooftops, roads, parking lots and driveways.

Impaired waterbody: A waterbody that is clean enough and has enough water to support its designated uses (e.g., swimming, fishing, boating, and water supply) is called supporting, and one that is not is called impaired.

Definition of Sustainable Water Use

“Sustainable water use does not harm ecosystems, degrade water quality, or compromise the ability of future generations to meet their own needs.” —Minnesota Laws 2009, Chapter 172

[More here](#)

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