

MEETING MINUTES
NEW HAMPSHIRE WATER SUSTAINABILITY COMMISSION
December 13, 2011

Commissioners in attendance:

Dave Allen
Virginia Battles-Raffa
Kris Blomback
Thomas Burack
John Gilbert, Chair
Denise Hart
Martha Lyman, Vice Chair
Cliff Sinnott
Chuck Souther
Alison Watts

Public in attendance:

Mark Green
Cameron Wake
Robert Morency
James Ryan
Jeremy Tomkiewicz
Dean Peschel
Bill Housell
Tom Bucu
Sarah Pillsbury
Paul Susca
Jennifer Rowden

Commissioners not in attendance:

Robert Beaurivage
Mike Licata
Amy Manzelli
Glenn Normandeau

Chairman John Gilbert called the meeting to order at 2:09 pm

I. November 15th Meeting Minutes

A motion to accept the November 15th meeting minutes was made by Dave Allen and seconded by Kris Blomback. The motion passed unanimously.

II. Updates

A. Budgets/ Grants/ Fiscal Sponsor

Marcy Lyman presented a revised draft budget to the Commission, which included potential income from grant requests and in-kind contributions from Commission members, the Department of Environmental Services (DES) and Governor's Office. The New Hampshire Rivers Council has tentatively agreed to serve as the Commission's fiscal agent pending board approval. The New Hampshire Charitable Foundation grant is pending, and if requested, can be turned into a match grant to help the Commission leverage more funds. A grant request has also been submitted to the Bean Foundation. The Bean Foundation funds can only be used for work in the Manchester/Amherst area, and would be used for the public outreach session in that Executive Council district. If both grants are awarded, the Commission will have raised \$22,500 in funds; however, the estimated need is approximately \$50,000. If any Commission members have ideas for potential matching grants and funding sources, please let Marcy or John know.

B. New Hampshire Listens and Leadership New Hampshire

On December 3rd, Denise Hart and Paul Susca attended a New Hampshire Listens' training to get a better sense of the method and whether it will be a good technique to use at the public engagement sessions. The consensus was that the technique seems like it will be a good fit; however, Denise and Paul quickly learned that they, and anyone else, close to the project will not be able to facilitate the sessions.

Leadership New Hampshire is designing its "Environment & Sustainability" in concert with the work of the Water Sustainability Commission and highlighting some of the key issues with which the Commission is grappling. The session will start with a panel discussion to the class, in which John Gilbert will be participating, and the session will then lead into a New Hampshire Listens style exercise. It was suggested Commission members not attend due to space limitations.

C. Outreach Opportunities

On December 7th, John Gilbert presented an overview of the Commission's work to the New Hampshire Society for Professional Engineers. A list of upcoming potential outreach events for the Commission was distributed along with a draft abstract to submit for the 2012 Water and Watershed Conference at Plymouth State University in March. Commissioners were encouraged to add to the outreach list if they know of any upcoming events.

Denise Hart reported that the Public Engagement working group has been in discussion with Bruce Mallory from the Carsey Institute at University of New Hampshire to develop a budget and timeframe for conducting the public outreach sessions. Prior to today's meeting, Denise e-mailed the Commission a full report of the Public Engagement working group activities (Appendix A). To summarize, the Carsey Institute would be able to have a report to the Commission by May and will cost approximately \$20,000. The public listening sessions would take place in each of the Executive Councilor Districts. The working group is hoping to hold the sessions in Berlin, Conway, Plymouth, Concord, Keene, Manchester and Greenland to maximize the reach of the sessions.

The Governor's Office has requested the Commission provide some talking points about water that Governor Lynch can weave into future talks and speeches. Commissioners were asked to provide stories related to water relative to the interests they represent on the Commission and to e-mail these to Denise before the January meeting.

D. Upcoming Meetings

John Gilbert outlined the following meeting schedule and topics for the remaining meetings to help the Commission meeting its June 1, 2012 deadline:

Date	Topic	Location
January 17 th	Water rights and water laws	NH Fish and Game Dept 11 Hazen Drive, Concord, NH
February 14 th	Commission work session	NHHEAF 4 Barrel Court, Concord, NH

March 20 th	Value of water versus the true cost of water.	NH Fish and Game Dept. 11 Hazen Drive, Concord, NH
April	Examples of watershed management in action/ Power production and water.	<i>To be determined.</i>
May	Review and finalize Commission report.	<i>To be determined.</i>
June 1, 2012	Present final report to Governor	<i>To be determined.</i>

John has inquired about a possible extension for the Commission to the Governor's Office, but has not yet received a reply.

III. Water Resources and Climate Change in New Hampshire

A. Climate Change Implications for Water – Cameron Wake, University of New Hampshire

Cameron Wake is a Research Associate Professor with the Institute for the Study of Earth, Oceans, and Space at UNH and is the lead for research programs to assess the impact of climate change in New England. Additionally, Cameron also directs Carbon Solutions New England, a public-private partnership promoting collective action to achieve a clean, secure energy future while sustaining our unique cultural and natural resources. Cameron was asked by the Commission to speak about how climate change will impact water resources in New Hampshire.

Predicting exactly how the climate will change is difficult, but outlining what the future might be is possible. Climate change models can predict what might happen depending on what society might do; the real key is preparing and adapting for a variable future. New Hampshire's climate is already changing as shown through various indicators, but society is also already adapting whether people are aware of it or not. Examples of this early adaptation are the increase in snowmaking at ski resorts and the number of generators residents are buying due to increased power outages caused by storms. Major general challenges for the state include: increased temperatures ramifications, dealing with increased precipitation, and infrastructure adaptation.

Potential issues and implications related to climate change include:

- **Increased precipitation:** the state will likely see more precipitation in fewer events, resulting in more intense storms and increased flood risk. Whether precipitation will fall as rain or snow is difficult to model.
- **Drought:** models show more precipitation in the spring, fall and winter seasons, but the summers are likely to be drier with parts of New Hampshire experiencing at least some degree of drought.
- **Stream flows:** the states streams and rivers will likely see increased flows in winter, and in general higher high flows and lower low flows.
- **Snowmelt:** the date the snow melts will likely come earlier and earlier, impacting flooding, skiing, aquatic life, etc.
- **Winter recreation:** with warmer winters and more rain, ski resorts will be come less viable and may rely more and more on snowmaking and snowmobiling may become restricted to the northernmost parts of the state.

- **Forest type:** with a warmer climate with more precipitation, the forest type may alter towards different tree species resulting in ecological and economic impacts.
- **Sea level rise:** will increase the potential for coastal flooding and storm surge damage.

Planning for all of these changes is already happening in various forms. A recent study on flooding impacts in the Lamprey River watershed and changes to the delineation of the 100-year floodplain have brought up questions about what the legal implications are if municipalities do or do not address increased vulnerability associated with climate change. Some engineers are starting to look at the updated precipitation models when designing or replacing infrastructure rather than going by industry standard models that utilize precipitation data from 50 years ago.

Questions: What recommendations do you have for the Commission that would allow for new science and information to be incorporated into planning and decision making? What incentives does the scientific community need to be more included in the process?

Answer: The key seems to be to stop talking about the future and to start talking about adaptation and management; a good example of this is the Coastal Climate Change Adaptation Group. There is a need to get the community leaders involved, such as emergency management, and assess a community's vulnerability. Regarding getting scientists involved, it is helpful to get them involved from the beginning, and at the larger scale more input from outsiders will only increase the accuracy and research capacity of those scientists.

Question: For the drought predictions, do we know what kind of duration and the geographical extent of what these might be?

Answer: Drought is going to be more of a long-term issue, and is not going to be as big an issue as flooding in the short term. Keep in mind that the drought scenarios do not include water withdrawals, nor has it been calculated what a population shift to New Hampshire might mean if water shortages elsewhere cause people to move here. Aquifer recharge related to increased precipitation and impervious surface was also not considered.

Sarah Pillsbury pointed out that Matthew Davis at the University of New Hampshire has been contracted to update the state's Drought Management Plan.

B. Watershed Science and Implications of Climate Change - Mark Green, Plymouth State University/ U.S. Forest Service Northern Research Station

Mark Green is a researcher at the U.S. Forest Service's Hubbard Brook Experimental Forest, a small-scale watershed research area with various datasets related to water quality, water quantity, etc. dating back to 1947 in some cases. Mark was asked to speak to the Commission about how forestry and watersheds may be altered by climate change.

The Hubbard Brook Experimental Forest is an internationally recognized long-term ecological research site. Beginning in the late 1950's research began to study the impacts of different forest management practices on forested ecosystems. Hubbard Brook is now known for its seminal work on acid rain, nutrient cycling, its contributions to the understanding of watershed science and the interaction between landscape and water, and more recently on issues related to carbon

sequestration and climate change. Precipitation that falls on the landscape does one of two things: goes into the groundwater or streams or gets absorbed by vegetation that evapotranspires the moisture back into the atmosphere. Findings of several experiments have highlighted the relationship of forests to water quality and quantity in small watersheds:

- Complete removal of vegetation causes increased runoff, but long-term water quality impacts from nutrients recover faster when areas are allowed to re-grow.
- Early succession forest, such as the vegetation that grows after a clear-cut, uses more water than old growth forests.
- Fertilizing a forest that results in increased growth rates causes a major hydrologic response due to the trees' increased evapotranspiration. (This referenced an experiment where calcium was added to forest soil from which it been depleted due to acid rain.)

What these finding could mean over a larger area is unknown, but could be significant. The impacts of climate change over the landscape at the local scale are similar to the impact Cameron discussed at the regional scale. One area that has not been looked at is the hydrologic effect that might occur if the forests (80 percent of the state is forested) begin to evapotranspire less due to increased cloudiness, humidity or increases in carbon dioxide in the atmosphere. This could translate into increases of seven or eight percent of precipitation going into the ground or running off. Some of the major climate change issues related to forestry and watersheds are the impact that warmer, shorter winters will have on trees, the impact of bio-energy production, changes in the forest matrix type, and changes in the climate and atmospheric chemistry.

Question: Is the water cycle being shifted?

Answer: It is hard to tell at this point, but the hydrologic implications of forest changes are trumped by the impacts increased precipitation will have. The soils in New Hampshire are its biggest reservoir to help prevent flooding. For example, if Tropical Storm Irene had hit the state two weeks earlier when the soils were dry then roughly half of the rain that fell could have been absorbed by the soils and the flooding would have been significantly less. The increased intensity of storms is less of an issue for forested landscapes where runoff is rare, but it is a major issue in developed landscapes.

Questions: How will the forest respond to climate change specifically related to flooding and forest management and development? Does the forest matrix have implications on water? How does typically managed forest compare to the extreme scenarios studied at Hubbard Brook?

Answer: Flooding is directly tied to forest management and the development of the landscape. If the forest matrix shifts from softwoods to hardwoods there likely would be a shift in the hydrologic conditions because softwoods evapotranspire in the winter while hardwoods do not. We simply do not know how a typically managed forest responds in terms of water quality, water quantity, soil chemistry, etc. compared to Hubbard Brook's experiments.

The major take home message concerning how forests and watersheds will change in the state due to climate change is that more research is needed. Specific areas where more research is needed are the impacts of forest harvesting on hydrologic conditions, the impact of air quality to trees and water chemistry, and how forest fertilization will impact water resources in the

Northeast. Climate change is here, but the implications are not yet fully understood at the local level.

C. Commission Discussion

The following questions and statements were discussed by the Commissioners and the guest speakers:

- What do regulatory agencies and decision makers need from scientists to influence policy in a timely manner? How does DES use the latest information?
- Local communities cannot react to uncertain information/science. The issue of limiting nitrogen in Great Bay is a great example of communities being wary of the science, particularly when it will potentially cost those communities large amounts of money to upgrade their wastewater facilities.
- Flooding might be the direct issue to get the public and local officials to rally around because it is already impacting the state.
- There is a need to get civic involvement with science early on; science wants to be relevant and needs civic involvement to do so.
- Partnerships are key, particularly connecting the scientists and the decision makers.
- DES uses the latest information, but needs help filling in the gaps and being able to predict conditions on a more localized scale. For example, what are the potential flooding impacts in a given watershed given different variables such as impervious surface, precipitation amounts and intensity, etc.
- When there is uncertainty, such as with the flooding issue, communities and regulatory agencies need to plan for adaptation and conduct vulnerability assessments to plan for unknown outcomes.
- A paradigm shift is needed to change planning for concrete situations with known consequences to planning for various situations to mitigate potential consequences.
- There is a need to consider the precautionary principal.
- There is the issue that the Commission has not considered, and that is how these issues and policies may or have played out if they enter the judiciary system.
- There are two levels of public engagement that are needed: the simple understanding of the need for water and the complexity of water issues.
- An underlying truth with the climate change models is that they use current and past conditions in mathematical equations to predict that will happen, but the more civic involvement there is in developing the models the better they will be. This also provides better outcomes for communities that are planning and for the scientists conducting research. Vermont Law School worked on the 100-year flood study on the Lamprey River and the potential legal ramification for communities in that watershed did or did not implement various development and planning tools that considered changes to the 100-year floodplain.
- Is looking at flooding actually a charge of the Commission? It seems that it is, but only as a cause or consequences of the other charges related to water quality and quantity.

VI. Public Comment

Tom Bucco, former state representative and Water Infrastructure Sustainability Commission (SB 60) member: The Water Infrastructure Commission is dealing with similar issue as this Commission. The way to influence the politicians to take action is to educate the public; the legislators do listen to their constituents. Regarding the public outreach events, if only one is conducted in Executive Council District One, which covers two-thirds of the state, the outreach events will not be representative.

Sarah Pillsbury, DES: The Water Infrastructure Commission (SB 60) will be meeting on December 15th at 1:00 pm at the State House in Concord.

Jeremy Tomkiewicz, UNH: As a graduate student working on a thesis exploring the civic engagement and policy nexus surrounding water resources in New Hampshire, he would recommend the Commission have Dr. Mimi Becker from UNH come speak to the group.

Jim Ryan, New Hampshire Fish and Game Commissioner: These meetings have been instructive, but he is still not sure he knows what the definition of sustainability really is. There is also the issue of providing funding to achieve sustainability.

Robert Morency, RCAP: This Commission does need to consider flooding as it is tied directly to sustainability.

Bill Housell, North Conway Water Precinct: Funding is critical to this effort. There is a need to win over local support in order to get the legislators to providing funding for local projects. This Commission needs to be bold in its recommendations and ask what the state's role is in funding local projects. This Commission also needs to be watching the federal budget and issues; specifically, states role in water allocation. If the group is looking at getting citizens and scientist to work together then they should look at the Southeast Watershed Alliance and the Lake Winnepesaukee Basin communities seeking to be more involved in Franklin Wastewater Treatment Plant (owned by DES).

Meeting adjourned at 4:55 pm.

The next Commission meeting is scheduled for Tuesday, January 17, 2012 from 2:00 p.m. to 5:00 p.m. at the New Hampshire Fish and Game Department, 11 Hazen Drive, Concord, NH.

Appendix A – Public Engagement Working Group Report, December 13, 2011

The Public Engagement Subcommittee met twice in November—on the 2nd and 15th. A group of us also met with Bruce Mallory of the NH Listens program at UNH on Nov. 22nd.

The Public Engagement Subcommittee members are: Denise (chair), Amy, Marcy, Paul (for Tom Burack), John Gilbert

Meeting with NH Listens/UNH – 11/22

John, Marcy and Denise met with Bruce Mallory, director of New Hampshire Listens and acting director of the Carsey Institute. Also at the meeting were Jim Nouncas from Portsmouth Listens and Sustainable Portsmouth, Charlie French from UNH Cooperative Extension.

We confirmed that the cost estimate to partner with New Hampshire Listens is approximately \$20K. Bruce distributed a budget breakdown and tentative timeline for public sessions, etc. With this timeline in mind, we would need to have funding in place as soon as possibly and

- Confirm locations - January,
- Recruit and train facilitators, collect data for discussion guide for participants and facilitators - Jan.-Feb.
- Begin publicity and participant registration – varies by site
- Conduct public engagement sessions – Feb.-Apr.
- Final report to Commission of session – May

We discussed that with a 25-year outlook for water sustainability in the state, what we really are interested in doing is building a constituency for water statewide. Water solutions bind us together, often across municipalities, counties and sometimes state boundaries. These solutions flow from the local level to the state and state to localities.

We discussed possible framing questions for the dialogue, looking at ‘what do we want to see regarding water’ or ‘how do we get there?’ No decisions were made. The Listens process begins with the personal experience and moves outward from there.

Public Outreach List

Amy and her intern Rebecca worked diligently to revise and improve on the initial public outreach list. With Jenn’s help, we now have it up as a Google doc that can be accessed at: https://docs.google.com/spreadsheets/ccc?key=0AnX1r_8Dsrn8dGhxUFJ4WIFEUjdhcmmhRMXE1d3pwOWc

Commissioners are asked to please review the list and to help us to expand it. Submissions can be added directly to the Google doc or sent to Jenn Rowden as an Excel spreadsheet with the same data columns.

Fund-raising

1. NHCF considering proposal for \$15,000 at December board meeting
2. Bean proposal submitted - requested \$7,500 - decision in February

3. NH Rivers Council tentatively agreed to act as fiscal sponsor pending vote of board on December 13 - Water Commission will pay fee of \$2250 (or 10% of whatever funds are received).
4. Our application for a Park Foundation grant in 2011 to support public engagement activities was turned down due to a focus on the hydrofracking issue. Denise will follow-up to see if we can apply for 2012.
5. Denise is outreaching to the Tillotson Fund at NHCF in coordination with Marcy's work there. This fund has a focus on the Coos County and the North Country and we would like to see if the Fund might assist with bringing a public session (one or more) to this region.

Outreach Events

11/16-17/11 – NH Municipal Association/ Local Government Center Annual Conference
12/7/11 - John and Paul spoke at NH Society of Professional Engineers lunch meeting about significant developments at NHDES and the Commission.

Upcoming Events:

- 1/19/12 – John and Marcy - Leadership New Hampshire Environment Day with focus on water sustainability. Paul developed a list of helpful readings, available online
- 1/19/12 – New England Waterworks Association joint monthly meeting in Nashua—will try to have Commission two-pager handed out and also information about public engagement sessions (thanks to Paul S.)
- 2/15/12 – Amy- NH Water Pollution Control Association's Legislative Breakfast - Amy is working with them on a portion of their program to include possibly having the Governor speak and involvement with Leadership New Hampshire.
- 3/23/12 – DES New Hampshire Water/Watershed Conference at Plymouth State College. We are submitting a proposal for an information table and a 2-hour workshop.
- Week of May 7 – DES' Drinking Water/Children's Water Festival

For a full list of upcoming and potential Commission outreach events, please visit the Google doc set up by Paul Susca:

<https://docs.google.com/document/d/1FRfX7KdsUFEkzB8ckSg0ZW0tvbA7Ti9H8HSpVkfGXsc/edit>

Talking Points

The Governor's office asked us to provide some talking points about water that he can weave into future talks and speeches. We discussed what types of water stories might be helpful to illustrate water issues/sustainability in action from regions across our state.

We are turning to our colleagues on the Commission and requesting that each person send a water success story *before the January meeting* that he or she is aware of in New Hampshire. This could be a collaboration among towns to address a water issue, a watershed association story, a conservation easement story, a story about water monitoring, a business that practices sustainable water use and how this is done, etc.

Please send your stories to Denise at denisehart1000@yahoo.com. The stories can be in bullet format or full text, whatever is easiest. Please cite organizational contacts and websites where available.