New York State Water Resources:
Assessing the Need for a Comprehensive Water Policy

Presented by:

Pace Academy for Applied Environmental Studies
PACE UNIVERSITY
Work toward greatness.

CENTER FOR ENVIRONMENTAL LEGAL STUDIES
PACE LAW SCHOOL

Beacon Institute for Rivers and Estuaries
New York State Water Resources: Assessing the Need for a Comprehensive Water Policy

Conference Summary

This conference summary presents the outcomes of the conference hosted by the Pace Academy for Applied Environmental Studies, the Pace Law School Center for Environmental Legal Studies, and the Beacon Institute for Rivers and Estuaries on September 23, 2009 at Pace Law School, White Plains, New York. We invite all conference attendees and the general public to provide further thoughts and reaction to this document at paceacademy@pace.edu.

Contents

Introduction ................................................................. 2
Executive Summary ...................................................... 3
A New Era of Innovation,
Keynote Address by Katherine “Kit” Kennedy .................................. 4
Summary of Conference Discussions ........................................... 8
The Good, the Bad, and the Ugly: New York State Water Management . . 8
Why We Need to Worry About Our Water Footprint
Luncheon Keynote Address by Nicholas M. Donofrio ........................................... 9
Regional Water Needs ..................................................... 12
Ecosystem Management .................................................... 13
Water Rights ............................................................... 14
Water Quality & Public Health ................................................... 15
Innovation & Economic Development ............................................ 16
Infrastructure & Investment ................................................... 17
Land Use Planning & Crisis Management ..................................... 18
Public Education & Awareness ................................................. 20
New York’s Water Future ..................................................... 21
Seven Generations and a Call to Action,
Concluding Remarks by Professor Nicholas A. Robinson .................. 24
Conference Conclusions and Policy Recommendations .................. 26
Appendix – About Host Organizations ........................................ 27
Contact Information ....................................................... 27

Report prepared by Pace Law School Center for Environmental Legal Studies Graduate Research Fellow Sean T. Dixon, with the assistance of law student research assistant Meghan Boian. Drafting was completed under the guidance and with the support of Michelle D. Land, Adjunct Professor and Director of Pace Academy for Applied Environmental Studies; John Cronin, Pace University Senior Fellow for Environmental Affairs and Director of the Beacon Institute for Rivers and Estuaries; Alexandra Dapolito Dunn, Assistant Dean of Environmental Law Programs and Adjunct Professor of Law; and Nicholas A. Robinson, University Professor for the Environment and Gilbert and Sarah Kerlin Distinguished Professor of Environmental Law, at Pace University School of Law.

Presented by:
Introduction

Our water resources are in crisis. In comparing states and their water quality, New York has a higher than average number of “impaired water bodies.” Most significantly, unregulated nonpoint source pollution accounts for 90% of the impact on river and stream water quality, 92% of lake and reservoir water quality, and almost 100% of the impact to the Great Lakes shoreline. Approximately one-third of New York’s population rely on groundwater as their drinking source—a source that is under attack from nonpoint source runoff in the form of pesticides, motor oil, and road salt. Acid rain and the deposition of toxins from atmospheric pollution continue to be issues that limit healthy fish consumption and normal ecosystem function. Added to these issues are the negative impacts of close to 175 (known) aquatic invasive species (with no legislation addressing the problem), recreational boat pollution, and excessive streambank erosion—in short, a myriad of factors contributing to pan-New York State water quality impairment. From the Great Lakes and the Erie Canal to the Hudson River Watershed and Long Island Sound, a comprehensive state water policy addressing this complex set of conservation and management issues is essential to securing the future of our water resources.

When the expertise found across our state is paired with recognition of the value of New York State’s rich, complex, and culturally important water bodies, we are presented with a unique opportunity to address this crisis and to look towards a sustainable water future. Accordingly, the Pace University Academy for Applied Environmental Studies and Pace Law School Center for Environmental Legal Studies, in collaboration with the Beacon Institute for Rivers and Estuaries, invited water policy experts from across the State and region to the New York State Water Resources Conference: Assessing the Need for a Comprehensive Water Policy. The Conference was held at the New York State Judicial Institute on the Pace Law School campus in White Plains, New York on September 23, 2009. The Conference convened knowledgeable members of the government, policy, legal, scientific, and academic fields to openly and freely discuss the shortcomings, successes, and the need for a comprehensive New York State water resource policy to lead us into the future. Through a series of roundtable discussions in diverse disciplines (including law, policy, health, science, economics, engineering, ethics, and education), the Conference generated concrete recommendations for New York’s water future.

This report highlights the background rationale for the Conference, reports the findings of the various expert working groups, and summarizes the conclusions reached during the proceedings.
Executive Summary

With a changing climate, growing coastal population, and an increase in sprawl, waterways are becoming choked, pollution from run-off is contaminating our waters, and New York State’s infrastructure is rapidly aging. As a State, we have a responsibility to our citizens, to our history, and to our future to properly manage our water resources and to protect our basic rights to clean water and healthy ecosystems. At a September 2009 conference held at the New York State Judicial institute at Pace Law School, the Pace Academy of Applied Environmental Studies, the Beacon Institute for Rivers and Estuaries, and Pace Law School initiated a water policy reform agenda in order to jump-start action to address our water policy needs. In this report, we summarize conclusions reached at the September conference and present policy conclusions and goals that we have developed in conjunction with New York State water stakeholders. In New York, we must act now to develop a holistic, comprehensive, collaborative water policy, and we already have many of the tools, the know-how, and the initiative to do so.

The following fundamental principles should be considered as we develop a comprehensive NYS water policy:

• For millennia, water in this region has been recognized as essential to life; to be good citizens, neighbors, and residents, we need to ensure that the basic human right to clean water is promoted.

• Home to industries, corporations, academic institutions, and communities, we as a State need to advance the dialogue between stakeholders; the conflicting uses of water necessitate a multi-stakeholder approach to planning.

• Even though we have failed to achieve the Clean Water Act’s call to ending the discharge of pollutants by 1985, the legal mechanisms for permitting and pollution prevention found in the law can still play a role in our attempt to clean up our waters—we need a renewed sense of purpose, a renewed commitment from the NYS administration, and a renewed effort to promote technology forcing policies.

• Our waters are being used for bottling, to absorb effluent discharge, to cool factories and power plants, for drinking water, in sewage systems, for watering lawns and to feed agriculture, yet the value that we place on water does not accurately reflect the importance of this resource to the State, to the environment, or to the people that rely on it. Until we accurately value water, we will have a difficult time ensuring its sustainable management and use.

Leveraging the diverse, unparalleled expertise found in New York will be essential to create an effective policy, which can serve as a blueprint for other state water systems.
Conference Keynote Address

A New Era of Innovation, Adaptation of Katherine “Kit” Kennedy’s Keynote Address

I am here today to discuss the need for comprehensive water policy planning. This conference couldn’t be timelier or more important. The Pace Academy for Applied Environmental Studies is appropriately sounding the alarm on the need to grapple with water policy now before we reach a state of crisis, internationally, nationally, and in New York. Water resources play a vital role in our State, from supporting fish and wildlife populations to providing ecosystems services. They serve important human needs and uses, such as space for recreation, sources of drinking water, and operation resources for industries. Water resources in New York support our economy, increase property values, generate and support tourism, facilitate commercial and recreational fishing industries, and allow for the shipping industry. Whether or not we choose to protect our drinking water, provide for sustainable water use, or prohibit pollution can make huge differences in our public health, environment, and economy.

The Current State of Water Policy in New York

From the very beginning of the modern environmental law movement, the Clean Water Act (CWA) has played a central role in protecting and enhancing New York State’s (NYS) water resources. Originally enacted in 1972, the Clean Water Act is a remarkable law in its breadth and comprehensive in its goals. At its core, the Act represented a fundamental shift in the way we address water pollution. Prior to the passage of the CWA, there was a notion that water pollution and effluent discharges were authorized as long as they could be shown not to cause specific problems in specific water bodies. The CWA turned that approach on its head, decreeing instead that water pollution discharges shall be prohibited without a water pollution permit. The Act required that these permits reflect the best technology available for the control of water pollution. In this regard, the Clean Water Act is, at its heart, an innovation and technology forcing mechanism—permits are designed to force technological adaptation.

At the time it was enacted, the Act was accompanied by an infusion of federal money for the construction of new sewage treatment plants and the retrofitting of existing ones. Today, implementation of CWA programs is no longer accompanied by reliable and necessary federal funding. The Act also gave citizens an important role in management: public participation in the permitting process. Overall, the 1972 Congress said that the Act was designed to “restore and maintain the chemical, physical, and biological integrity of the nation’s water.” In order to achieve that objective, two specific goals were worked into the very fabric of the Act: that the discharge of pollutants should be eliminated by 1985 and that water quality standards, wherever attainable, should be achieved by 1983. Decades later, we have by no means achieved the goals of technology forcing, the across-the-board involvement of citizens, the elimination of pollutant discharges, or the attainment of water quality standards.

What do we make of those goals? Were they helpful? Are they driving us forward? Are they simply naive? Should NYS adopt specific goals such as those to help move us forward in the fight to limit water pollution? If so, what should those goals be? As we all know, NYS is blessed with incredible water resources; hundreds of miles of coastline, estuaries and beaches, 70,000 miles of rivers and streams, 4,000 lakes and ponds, 2.4 million acres of wetlands, and annual use of over 210 billion gallons of groundwater. We also have spectacular, unique resources such as the Hudson River, the Great Lakes, Niagara Falls, and the Finger Lakes. Today, more than thirty-five years after the inception of Clean Water Act initiatives in the State of New York, there is good news and there is bad news.

---

1 When delivering this keynote address on September 23, 2009, Katherine “Kit” Kennedy was the Special Deputy Attorney General for Environmental Protection, serving under the leadership of NYS Attorney General Andrew Cuomo as the chief of the Environmental Protection Bureau. Kennedy is currently an Attorney-Advisor with the Natural Resources Defense Council in New York City.
The Good News and the Bad News

The good news, of course, is that we have made huge progress over the last few decades in protecting and enhancing water quality in the State. The Hudson River, even as an example of the work left undone, is a symbol of progress. From the origins of our State through the 1960s, there were discharges of raw sewage directly into the Hudson. Now, after the construction of numerous sewage treatment plants and the attainment of secondary treatment, stretches of the Hudson River are clean enough for swimming. Sixty years after General Electric first began dumping PCBs into the Hudson, and thirty years after the use of PCBs was prohibited by the Environmental Protection Agency (EPA), contaminant cleanup has finally begun. One hundred years ago, the Bronx River was akin to an open sewer; after much work by New York State’s water policy leaders, it is now being actively and successfully reclaimed—canoes and kayaks are back on the river and wildlife is returning. Wildlife forays into the Bronx River includes the first run of Alewives (possibly in hundreds of years) and the new presence of a beaver named José, the first to be spotted in the river in some two hundred years.

Despite these and many other dramatic successes stories, however, there is still much more that remains to be done. Approximately one of every seven assessed waterways does not meet water quality standards. About 14% of these waterways, some 4,700 in number, are considered to be impaired by one or more pollutants. Approximately 40% of our lakes, and one third of our estuaries, do not fully support their designated uses. As one example, the entire shoreline of the Great Lakes in NYS is categorized as impaired (not fully supportive of designated uses). NYS ranked twentieth among thirty states in NRDC’s most recent national beach water quality assessment, with eight percent of all water samples collected at our beaches exceeding national health-based standards. While New Yorkers lost a combined 1,600 beach days due to closures or advisories last year, greater challenges lie ahead.

Climate change, arguably the most important environmental challenge of our time, is predicted to have a substantial, far-reaching impact on our State’s water resources. These impacts include, among other things, earlier and larger stream flows, sea level rise, extreme weather events in the form of both floods and droughts, and hotter, drier summers. As such, climate change poses unparalleled obstacles to the management and protection of water supplies, water quality, and ecosystem services. The challenges of climate change will require a response as substantial and far-reaching as its impacts; one that is comprehensive, and addresses a complex set of water conservation, restoration, and apportionment issues.

With this background in mind, how do we reinforce the progress that we have made on water issues and overcome the obstacles that stand in our way? Are limitations under the law holding us back, is it the need for a comprehensive policy and better coordination amongst the numerous stakeholders, or is it that there are insufficient resources for compliance and enforcement measures? Or, as I suspect, is the answer that all of these issues are interfering with innovation and water policy reform?
The Sufficiency of the Clean Water Act

In terms of limitations on the law, often it is difficult to tell whether existing legal tools can protect water resources, whether we need new legal tools to address new concerns, or whether the problem is simply that we need to focus more on enforcement and compliance. For example, with aquatic invasive species (a significant problem in the State), we have fought hard to use the Clean Water Act to control the ballast water discharges from cargo ships that transport species such as the Zebra Mussel and Asian Carp. Even though the EPA was recently found to be charged with regulating invasive species, NYS has taken upon itself the task of developing, implementing, and defending stricter water quality ballast water certification, requiring greater protections for cargo ships in New York waters. While this problem is far from “solved,” we have found a way to utilize existing legal tools to protect our water resources while simultaneously developing new tools for the future. On the other hand, in one year (2007), the ten largest water-bottlers operating in New York State withdrew over 100 million gallons of water from the springs, ground water, lakes, reservoirs, and rivers within New York’s borders. The huge withdrawal requirements of a burgeoning bottled water industry, we fear, may degrade the rivers normally being fed by the diverted water, lower water tables and reduce groundwater supply to wells, tributaries and estuaries, problems not adequately addressed by CWA programs and management practices.

When we look at the Clean Water Act, we see that it can be used to address not only fundamental pollution problems, like sewage, effluent discharges, and toxic pollution, but also to address new and emerging threats like aquatic invasive species. But is that enough? Do we need new comprehensive legislation at the federal level for each new problem we face (like invasive species or climate change)? Or, is it simply a matter of increasing CWA enforcement and instituting stricter water quality standards at the state level? If we do need legislation, how can we build on and not undermine the Clean Water Act’s basic protections to address aquatic invasive species? How do we avoid preemption, how do we provide the requisite funds?

Regulations, Flexible Implementation, Funding, and Enforcement

In some ways, we need a more restrictive regulatory system— in others, we need to emphasize flexibility in the application of existing water laws and incentives. One example of this is the complex area of storm water pollution and combined sewer overflow (CSO). These sources of water pollution have a huge adverse impact on water bodies, drinking water and have proven expensive and difficult to solve through traditional engineering projects. Many communities, with the encouragement of New York State, have begun to develop cost effective techniques for addressing these problems. By focusing on reducing the volume of storm water pollution that enters our waterways through a range of solutions from green roofs and rainwater collection to permeable surfaces and wetland development, we have the innovative know-how to capture and cleanse these discharges. Already, in the Bronx River ecosystem, we have created new wetlands and swales to collect storm water, reconfigured storm water discharge pipes, and begun to “green” the New York Botanical Gardens. By combining engineering, funding, and infrastructure solutions, we have been able to adapt to a deteriorating situation and work cooperatively towards a clean water future.

Limited resources, particularly for municipalities, represent a major challenge to moving forward with water resource management projects and policies. Over 600 municipal wastewater treatment facilities operate in New York State; an estimated 25% of these are operating beyond their useful life expectancy and many are using inadequate out-dated treatment technology. Most of the regulated public water utilities in the State approach or exceed 100 years of age; some still rely on original infrastructure. It has been conservatively estimated that over the next twenty years, the cost of necessary investment in infrastructure exceeds $50 billion for the State. Coordinating with the federal government, New York
State has managed to steer well over $200 million to water infrastructure projects. But in the future, when stimulus dollars are no longer flowing, we will need a long term funding strategy.

The final issue I will address is enforcement—we need to provide New York with the proper tools and resources to ensure compliance. States often do not have the resources to put enough “cops on the beat” to ensure the clean water laws are met. One of the long term challenges that we face in protecting and enhancing New York’s waters will be to find resources to maintain the staffing needed by our State’s regulatory and enforcement agencies to fulfill their functions. While we cannot use and are not using a lack of resources as an excuse, we must develop ways to be smarter and more efficient in how we approach enforcement. Coordinating monitoring resources, focusing on particularly vulnerable and exploited watersheds, and sending strong enforcement messages to law breakers must be essential elements in any new water policy.

A New Era of Innovation

While I recognize the enormity and the difficulty of addressing New York’s ongoing and future water resource challenges, we all know that with challenges come opportunities. Our need to protect and enhance our water resources has the potential to usher in a new era of innovation and of more progressive approaches to water conservation and management. To be successful in dealing with infrastructure, climate change, funding, enforcement, and legal challenges, we will need to integrate programs that promote water conservation and recycling, green buildings and low-impact developments, smart growth and habitat restoration. We need a comprehensive policy agenda that supports “greening” infrastructure, restoring wetlands, headwaters, and floodplains, and a host of other practices. Responding to our water resource challenges in a comprehensive way provides an opportunity to showcase New York’s ability to be innovative and progressive.

Where do we go from here? How do we harness the energy and talent of New York water experts to focus on these problems? Do we need a task force or state commission to address these issues moving forward? If so, what would that group be charged with? How would we avoid duplicating existing efforts and resources on this topic? I would like to see the Pace Academy play a role, not only today but moving forward, in bringing together the answers to these questions, keeping this group together, and harnessing the energy to provide some answers sooner rather than later.
Summary of Conference Discussions

The Good, the Bad, and the Ugly: New York State Water Management

MODERATOR: Jeffrey G. Miller, Vice Dean and Professor of Law, Pace Law School
SPEAKERS: Matthew J. Millea, Acting Director, NYS Environmental Facilities Corporation; Kathy Robb, Director, Water Policy Institute; James Tierney, Assistant Commissioner, Office of Water Resources, NYS Department of Environmental Conservation.

This plenary session focused on the pros and cons of New York State Water Management. Unfortunately the “cons” outweighed the “pros” and the panel identified that New York has a lot of work to do in order to improve its water management.

Pros
- Long Island Sound is on track to upgrade wastewater treatment plants that flow into it.
- New York State has recently imposed the most stringent ballast water controls in the world.
- Green infrastructure projects help to reduce polluted nonpoint source runoff and combined sewer overflow discharges while also greening the urban environment.
- The New York City Watershed Program is exemplary.
- New York has substantial laws and regulations on the books to address water quality.

Cons
- Funding has shifted from federal grants to nearly 100% local funding.
- The federal and State water resource laws are piecemeal in nature.
- The uncertainties of climate change make innovative water policy planning difficult.
- Litigation is really the only way water policy is getting resolved; however, litigation does not make for comprehensive regulations.
- Much of the Great Lakes coastline has algae overgrowth that impacts tourism, fishing, and real estate industries.
- EPA standards are outdated and do not often reflect the best technology available.
- The NYSDEC is under-staffed and under-funded.

Conclusions
New York should not only adopt inspirational goals for water quality but also develop new standards and put a premium on compliance. We need a state-wide water resource administration to act as a leader for dealing with all water problems and plans. While we develop new goals and long-term innovations for water policy, there must also be a short-term emphasis on compliance and enforcement—we already have laws designed to protect waterways, we just need to apply them more vigorously. Climate change is threatening our resources in manners we have yet to fully understand; we need to develop research programs to study such change and enact laws and regulations that can allow for adaptive management—plans that are already being made in other states and other nations. Facilitating “green” infrastructure and green development is the best way for our cities to handle combined sewer overflow (CSO) and sanitary sewer overflow (SSO) problems. Water rates should reflect the impacts our actions have on the resource, but such rate increases should, in turn, fund community and stakeholder initiatives to advance the public’s involvement in the water management process. Finally, we must include the public in any advocacy, scientific, or regulatory actions because we need public support to drive the political and economic changes that will be necessary to protect New York’s water resources.
Why We Need to Worry About Our Water Footprint

In his luncheon keynote, Nick Donofrio issued an inspirational challenge that set just the right tone for the afternoon breakout sessions. He called upon conference participants to recognize and act upon the global water crisis, to seize the opportunities offered by emerging technologies, and to embrace, rather than fear, change.

Nicholas M. Donofrio, Former Executive Vice President of Innovation and Technology, IBM Corp.

Good afternoon, it is a pleasure to be with you. I want to thank everybody that President Steve Friedman of Pace University already thanked for getting me here, and give a special thanks to John Cronin.

I’m a mid-Hudson valley native, born and raised in Beacon, NY. My family still lives there. We have a deep sense and abiding appreciation of the Hudson River. You could swim almost anywhere you wanted when I was growing up. It was interesting watching the Hudson fall apart, for a myriad of reasons.

I’m not a water expert, but I’m here to give a different perspective. The real issue is: Why does anybody worry about water? Whether a company, individual, school, or government, why worry about water? It is on the agenda of ten things that need to be worked on, but it is always in the last five and not the top of the list. But why?

We’re too comfortable with water.

IBM is a lot of things to a lot of people, but one thing I found was that IBM was always quite willing to understand when it did something wrong: own it and fix it. Wherever it was, whatever the problem was—even if the government said it was OK to do something, and then changed its mind and held IBM accountable—we always found a way to deal with the issue up front. That’s what I liked about IBM.

You can’t make semi-conductors without water. But it’s water that you cannot drink; it is totally de-ionized, incredibly expensive water. That is how you make computers with those little chips. The world is instrumented. The industry as a whole produces more transistors per year than we harvest grains of rice. On average, we produce a billion transistors per person per year. It’s pretty profound when you think about it this way. But that’s how instrumented we are. And we couldn’t be instrumented if it wasn’t for water. Water is critically important to the success of society.

IBM taught me that there are two things you need in order to lead: you need to create value—whether societal, economic, or educational—and you need to have value, things that somehow transcended everything else. That’s why IBM cares about water. It knows it needs it to generate economic value but it has values in the process that help it understand that it is a good corporate citizen and needs to have a portfolio of things that reflect the social responsibilities of the company. IBM conducted a water study at the end of last year because water presents an under-appreciated situation. It is a potential crisis and people don’t understand that.

Maybe what we need to do is have somebody win a Nobel Prize for water, then maybe they will pay attention to us. Somebody is going to win a Nobel Prize for water and there are lots of people who deserve to be on the list of people to consider. I remind people that long before we die of a hole in the ozone layer, we will die for lack of fresh water. Nobody seems to be able to understand or appreciate that. What I just said is fundamentally true. We are screwing up the delicate balance of the water supply of the globe.

Fresh water supply is dwindling, though it is not supposed to; it is supposed to be a constant, or at least we’re supposed to be improving it. We’re going to put three billion more people on this planet between now and 2050–100 million in the U.S. alone in that same time period. Where are they going to get the water to drink or to do anything with—grow things, make things, etc.? The consequence of producing those things is that there IS a water footprint. We need to start to measure not just carbon footprints, but water footprints.
The Global Innovation Outlook Report on water that IBM performed talks about water footprints. The one statistic that I'll never forget is that it takes less water to make a glass of wine than a cup of tea. The fact of the matter is there is no real motivation to change. Yet, change is the answer. Change is the problem and the answer. Everything changes. When you stop changing you’re screwed as a nation, a society, a culture, a business.

IBM stopped changing in the late 1980s and early 1990s and, as a result, almost died as a company. I know exactly what happened. We fought our way out because we changed and we did not waste that crisis. That is important to remember. Don’t waste these crises. These are societal, cultural changes; they don’t come easy, unless you’ve got momentum behind you, like the threat of global warming, or a hole in ozone layer. Where is the equivalent crisis for water?

It was in Atlanta two years ago, its in southern California now, where they have to buy their water. I’m not scholarly in this area, but somehow your job is to make this an every day consequence for people, to make people uncomfortable, socially intelligent, right-minded, and right-footed on these topics, so they are worried not just about creating value, but the values they use to create the value. We need not just to conserve, but reverse some of the systems we have in place. There is technology that abounds that we need to democratize. Bring technologies to bear, allow things to intersect in a different way.

Real innovation in the 20th century is a lot different than when I was growing up. Then it could be the invention, creation, or discovery. That’s not the way it is today. The technology abounds, but the real innovation is what you do with technology, how you connect it together in unique ways to problems that those of you here are very intimate with. Then you unlock the hidden value. You only get to that innovative point when you keep bringing things together that aren’t normally brought together, intersecting things that don’t normally intersect.

Many of them are useless, but many of them are the innovation that you’re working for. They are the way that you are going to address these insidious water problems. For example, Beacon Institute’s proposal to make the Hudson more of a real-time living, sensing laboratory, so that you know exactly what’s going on right at that moment, and not a week or month from now.

We should be able to pinpoint problems instantaneously, predict them before they occur. It’s the power of taking the instrumented world, which is incredibly interconnected, and extracting real intelligence out of it—not data, information, but intelligence on its way to real knowledge. That’s the hope of tomorrow, what’s in our grasp. I always applaud Beacon Institute for doing this, for intersecting things that didn’t make any sense. The real problem wasn’t the instrumentation of the Hudson, but how to process all of that data in real time. Can you do that? Of course you can, we do that every day in this country in a myriad of industries already—financial services, government, travel/transportation and distribution to name a few. If we can do that for them why can’t we do it for water, for the environment, for those things that allow us to generate real value? For the values that will make that value really happen?

This is what will determine the ultimate success of our country in the 21st Century. This is where the action is, where we’re going to get the growth that President Obama is talking about. This is where we’re going to put all those people to work. The agricultural sector is shrinking—there are fewer jobs. We need
to use innovation to generate value—political, societal, scientific, educational value. China, India, and Africa are all going to get stronger. We live in a globally integrated economy. You can be an isolationist, but it will not be successful.

This country has one direction—innovation. We are not going to get there if we don’t have fresh drinking water.

All the technology, the instrumentation, will help. But we need to remember what my father told me. He was a first generation American, and never even passed the 10th grade, because he had to go home and help make ends meet. But he was a very wise man, and he pushed us very hard. He said that we were going to be educated, and instilled the principle of hard work in us. We had a garden, and I had to weed, water, and harvest it, and, when I could, he got me a job at corner gas station, pumping gas. It was always a grind.

I went to Beacon High School, and had to pass the New York State Regents exams. My father made me take a math course every summer. The summer between my sophomore and junior year, I had had it up to here; it was never good enough, you have to do more, etc. I decided to push back, which was always a dangerous thing to do with my father.

But I didn’t care, I said, “Dad, we have to talk. I need to understand why is it that everything in my life has to be so different than yours and why everything I do isn’t good enough, everything has to be changed in my life compared to yours?”

He said, “Because if nothing changes nothing changes.”

It is no more complicated than that. It’s all about change, always has been about change. Change something, do something different. Do something about it. It is always about that simple lesson that my father taught me. Change.

Changing without a crisis is very hard to do, but its what we have to do. It is either that or a steady diet of crises, which is a horrible thought.

Don’t waste the ones you’re given, but don’t make that your plan for life. Work on plans this afternoon.

I hope you remember the words of my father. I hope they continue to echo in your ears. Why do you think they’re making so much more progress in other countries? Because they are way behind us, and have little to worry about change. Their passion for changing, raising their standard of living, overcomes all of the obstacles.

It used to be that way here, we have got to find a way to put that flame back on the burner, put the eye of the tiger back into the heart and soul of the country.
**Regional Water Needs**

**MODERATOR:** Karl Coplan, Professor, Pace Law School

**SPEAKERS:** Timothy Cox, Corporate Counsel, Catskill Watershed Corporation; Kathryn Garcia, Assistant Commissioner, New York City Department of Environmental Protection; David Gibson, Executive Director, Protect the Adirondacks; Margaret Miner, Executive Director, Rivers Alliance of Connecticut.

This breakout session focused on how to balance the regional water needs for humans, industrial processes, ecosystems, and recreation. The main concern of the participants in the group is the need for potable water and the problems in attaining it.

*The problems with water in New York:*

- Communities can not afford to supply potable water to residents and businesses without significant changes in how funding is supplied.
  - There needs to be legislative support as well as grant funds.
  - Funding from the USDA, the governor’s office, Empire State Development Corporation funds, technical funds, and grant funds all need someone to coordinate them.
  - To get more funding, water policy should be considered with energy policy.
- New York has plenty of water; however the water quality conflicts are the problem.
  - People should come together through arbitration.
  - Rural communities may need more help than other communities in the State.
- New York City’s major water problem is that it has old infrastructure.

*How to implement new water policy in New York:*

- Process versus Substance. Citizens need to be informed about water policy and how it is made.
- Public Citizens versus Private Consumers. Ways to approach individuals and groups in order to inform them can be done either by confronting individuals as public citizens who have a responsibility, or by marshalling the power of the private consumer. Both are needed.
- Mass versus Elite Mobilization? Either mobilize the citizenry to put pressure on elected officials and quasi public entities, or work behind the scenes with the few policy makers that you know will make the difference because they write the laws.

*Conclusions*

Watersheds need to be managed holistically. Stakeholders in energy, fish/wildlife, recreation/tourism, and public health industries need to come together to find a mutually-beneficial policy for the management of water resources. Regionalism is a vital component—watersheds do not stop and start at state, county, or municipal borders. Working among these political groups will be the only way to actually generate improved resource management. Emerging issues such as energy development and water bottling must be addressed by developing a policy that is as flexible as it is comprehensive; as adaptable as it is enforceable. Placing a premium on aquifers and watersheds will force industries to think of water resources as part of their infrastructure—a change that will go a long way to protecting our Public Trust rights to water. Community initiatives must be part of a greater statewide policy or plan of action; piecemeal solutions (for water shortages, CSO overflows, industrial CWA violations, etc) should be made with the advice and consent of the greater New York water policy community, but enforcement and compliance should be managed and sustained through local political, economic, and social pressure.
Ecosystem Management

MODERATOR: James Cervino, Professor, Biology and Health Sciences, Dyson College of Arts and Sciences, Pace University

SPEAKERS: Darran Crabtree, Senior Freshwater Scientist, Central and Western New York and Pennsylvania Chapters, The Nature Conservancy; Frances F. Dunwell, Hudson River Estuary Coordinator, NYS Department of Environmental Conservation; Jessica Owley Lippmann, Assistant Professor of Law, Pace Law School; Emma J. Rosi-Marshall, Ecologist, Cary Institute of Ecosystem Studies.

This breakout focused on the ecosystem-wide aspects of water resource policy. Climate change, the interrelatedness of aquatic-ecosystem management and human health, and public awareness of the value of a clean environment were the foci of this discussion.

Climate Change
For New York, sea level rise is expected to significantly impact coastal land use, brownfield areas, marshlands, and public works from bridges to sewage treatment. Currently, many municipalities in the region are not considering how they will manage the coastal zone with changing sea levels, storm surges, and tidal patterns. New York City permit approvals for residential developments taking place on known solid waste landfills do not address sea level rise-caused ground water intrusion and mixing of chemicals. With this oversight, seawater inundation will affect coastal water-tables making once benignly-buried toxins saturated with water and released into the ecosystem; acidification and algal blooms will affect fisheries, oyster beds, and the ecosystems our living coastal and marine resources depend upon.

Ecosystems and Public Health
The NYSDEC’s mission is based upon the problems of the 1970s, not the problems of the twenty-first century. If regulators look at their job as sector-based (reducing dissolved oxygen, monitoring emissions, etc.), they will lose sight of the impact of their decisions both up-stream and down-stream. In short, tunnel-vision with respect to regulations stands no chance of seeing the greater ecosystem impacts that are being threatened. If, as New York State’s water policy leaders, we succeed in doing a great job in treating storm water, but in the process we fail to replenish the groundwater, is that a victory? If we clean up contaminated riverbed sediments, is it fair to then dump them in another watershed? Is the purpose of water policy reform to abide by the CWA or to conserve water? Do we want to make the most optimal uses of our water or do we want to make the best uses of our water?

Public Awareness of the Ecosystem and the Ecosystem Approach to Water Management
The discussion on public awareness centered on asking how to best take scientific information and translate it into policy. When the NYSDEC says that a “river is not meeting its designated use,” we need to show people what this means, why it is important, and what we are doing to work towards a healthier ecosystem. Frequently, the EPA and NYSDEC have their hands tied because the regulated public does not know that many of their activities have down-stream impacts that lead to weakened ecosystems, but there is no effective way to educate them on the secondary, tertiary, or even more attenuated, yet still significant effects of their actions. We must use education to instill public pride in our NYS water resource policy. At higher levels of government, where the conflict is between a healthy ecosystem and industrial use and development, the only way to balance private interest is to show the developers and the public that clean water and a functioning ecosystem is absolutely critical to sustainable, long-term development and prosperity.
**Conclusions**

We need to approach water resource management from an ecosystem perspective. In other words, we need a policy that thinks like an ecosystem. Adaptive management and stakeholder involvement will generate ecosystem-wide ideas and public awareness. At the very least, people must be willing to adapt. Achieving this willingness must be done through education and education must be based upon the most thorough, up-to-date ecosystem research. Our current legal system is mired in single-issue statutes and reactionary legislative changes. We have already seen research reports and state-wide task forces for many of the issues discussed in this report, but we have largely failed to collectivize, to work together, and to communally disseminate science, ideas, or laws. Adaptive management is very difficult to accomplish due to a heavy reliance on collaboration and a need to continually revisit management strategies. We need opportunities to go back to revise the law. We need to think of new forms of law. The time is now to be creative.

**Water Rights**

**MODERATOR:** David Cassuto, Professor, Pace Law School  
**PANELISTS:** Robert Chapman, Professor, Philosophy & Religious Studies, Dyson College of Arts and Sciences, Pace University; Bruce Jennings, Director, Center for Humans and Nature; Chief Oren Lyons, Faithkeeper of the Turtle Clan of the Onondaga Nation, Distinguished Professor Emeritus of American Studies, SUNY Buffalo; Frank Sanchez, A Nakota Leader, Yankton Sioux Nation, South Dakota.

This breakout session focused on what water means in both the context of a legal right and as a natural right and source of life. Generally, the discussion compared these two meanings of water and explored the dichotomy by approaching water from the perspective of indigenous peoples whose lands and waters are shared with the State of New York.

**A Legally-Enforceable Model**

- Unfortunately, we live in a system controlled by possessive individualism, which leaves out an ethical responsibility to the natural world.  
- The human “Right to Water” is only now being acknowledged.  
- Limitless growth is seen as an actual possibility, so the only responsibilities that this system acknowledges are those that satisfy our desires through consumption.  
- If we follow the individualistic or normative privatization of control approach then water becomes a commodity controlled by individuals or powerful groups.  
- Reserved water rights, especially aquifer rights, of the indigenous peoples within the territory of New York State, are enforceable and can promote water conservation.  
- The Earth Charter (www.earthcharter.org) is a useful ethical framework to guide the application of legal rights to water resources.

**A Necessity for Life–Ethical Model**

- Chief Lyons highlighted how important water is viewed by the Onondaga Nation, who greet and thank water at the beginning of any tribal meeting. They recognize that without water they would not be able to live.  
- Water is a shared bond between humans and nature; it is a civic duty of our democracy to accord rights to both sides of this bond.  
- Under this viewpoint, “natural law,” the legal approach to water in New York State appears to be illogical, and defies the sacred character of water.
Before New York State can treat water honestly, it must renounce the “Doctrine of Discovery” upon which private and public claims to land are based.

Since there are universal rights to life and health, water must be among these rights.

Water is sacred to many citizens of New York State; this aspect of water must be acknowledged and respected.

**Conclusions**

Ultimately, we should move away from the “water property” model and move to a model that treats water as a cultural resource, expanding the Public Trust Doctrine with respect to water. We have created companies that have more rights than humans and who are controlling our water, its quality, and essentially ensuring our right to life. We in New York, have violated the reserved water rights provided for in our treaties with the First Nations; we should expand upon these rights to encompass a right to pure, clean water.

New York needs to manage companies and make them pay the true cost of their operation, i.e. the effect the company has on natural resources. In the end, it seems that in order to properly take care of water and protect it as a vital resource of life, we must approach the topic with the same reverence to water as the indigenous peoples in our State adopt, while working this approach into a functioning economic framework. Conservation is the antithesis of the political, societal, and economic reality in our world today. In order to achieve conservation in any context we must adopt a new system that recognizes resources as finite and precious and not commodities.

**Water Quality & Public Health**

**MODERATOR:** Daniel Estrin, Co-Director, Environmental Litigation Clinic and Adjunct Professor of Law, Pace Law School

**SPEAKERS:** Philip Bein, NYC Watershed Inspector General, New York State Attorney General’s Office; Lin J. Drury, Associate Professor, Lienhard School of Nursing, Pace University; Leonard Meyerson, Deputy Commissioner for Environmental Health, Westchester County Department of Health; C. Scott Vanderhoef, County Executive, Rockland County.

This breakout session grounded its discussion on the fact that health concerns primarily stem from exposure to pharmaceuticals, exposure to pollutants through drinking water and exposure by contact during recreation (swimming, boating, etc.).

**Pharmaceuticals**

This first area of concern occurs in a public health "knowledge gap." When the Clean Water Act (CWA) was passed there were three pollutant types: conventional, non conventional, and toxic. But our knowledge of pollution has grown—and over the last two or three years, laboratories and pharmaceutical companies have become a significant cause for concern. There is a body of literature indicating that these industries produce the majority of contaminants found in reservoirs and streams all over New York and the United States. The most commonly found drug group is endocrine disruptors—drugs that lead to developmental, reproductive, and immune problems and cannot be removed by wastewater treatment plants. Additionally, antibiotics that are disposed of through the wastewater system disinfect the treatment works of the “good” bacteria necessary to the treatment process.

**Protecting Public Health against Contaminated Drinking Water**

Drinking water is a precious resource, however, ingesting contaminated water leads to health problems. For many parts of NY, septic tanks not designed for long-term use, pesticides leaching into the groundwater, and untested wells are leading to contamination and disease. The people most at
risk from these threats have no way to deal with their illness and have no one to sue because they don’t know who to blame. Much like wastewater systems cannot treat most pharmaceuticals, drinking water purification cannot remove many synthetic substances.

In a few counties around the State, including Westchester and Rockland, there are laws that require home-sellers to test the quality of their well-water before finalizing a sale. Research from Rockland County shows that 36% of the wells tested are clean, 30% have bacteriological problems, and 30% have “secondary” issues (e.g., sodium, chloride). Where contamination is found, the state or county environmental agencies should notify neighbors, investigate for sources of contamination, and resolve the issue before public health can be threatened. Unfortunately, pollution issues that leak across municipal, county, or state borders cannot be meaningfully addressed under current laws, and many governments cannot afford to monitor well-water testing procedures.

Protecting Public Health against Contaminated Recreational Waterbodies

Storm water pollution is a big issue—every time there is a 1-inch rainfall, at least 11 beaches in the State are closed because we know it is not safe for people to be in the water. There is an answer: sewage/storm water separation. The aging infrastructure of most municipal storm systems is the single greatest roadblock to cleaning up exposure through recreation and along beaches. Because no one wants taxes to go up, we have sewers that are a century old spilling onto our coasts, sometimes feeding back into reservoirs and drinking water basins. Many of the systems are breaking down. This issue may be largely ignored, but it is not going away; flooding and sewage overflows are even expected to become more intense with a changing climate. Without funding, our aged sewers will collapse or be overrun with runoff, further endangering public health and safety.

Conclusions

Without money there is little anyone can do; enforcing and applying the law becomes difficult. Generally, we focus on CWA point sources, much to the detriment of diffuse sources, storm water overflow, wells, and drug-waste management. These other contamination sources present significant hazards to health and deserve equal attention. If there are no financial or business incentives, there will be no change over the long term. We need innovative technology. For example, we should collect rain water and use it, keeping it on our properties so it doesn’t overtax runoff sewers or generate diffuse nonpoint source pollution.

- Keep rainwater local.
- Solve the money gap, shift costs from NYSDEC or NYCDEP or EPA to the discharger as a user fee.
- Use a wastewater treatment system only under strict numerical limitations.
- Develop pesticide reduction and septic tank maintenance laws to minimize harm from the runoff we do generate.
- We need municipalities to test local drinking water supplies for the public—the public will not test it themselves until they get sick, when there is no way to reduce the toxicity.
Innovation & Economic Development

MODERATOR: Claudia Green, Professor of Management, Lubin School of Business, Pace University

SPEAKERS: Dan Bena, Director, Sustainability, Health, Safety and Environment, PepsiCo International; Farrokh Hormozi, Chair and Professor, Public Administration, Dyson College of Arts and Sciences, Pace University; Hsui-Lin Winkler, Associate Professor, Seidenberg School of Computer Science and Information Systems, Pace University.

This breakout session focused on channeling innovation to yield economic growth and water quality improvement.

Water is critical to life, and essential to businesses. At PepsiCo, for example, water is the primary ingredient in the company’s beverages, and vital to the production of most of the company’s other products. As such, water quality and quantity are important resources to be safeguarded. The availability of clean, abundant water is important for the company’s economic productivity and the health and productivity of the communities in which PepsiCo has operations. Water use in developing regions must be done responsibly and must also be coupled with local community development initiatives—initiatives that generally start with education. The intimate relationship between water and education is based on the need for information: people need to learn about the importance of water before they will be able to or inclined to deal with resource management problems. In many cases, appealing to society’s conscience is the most effective way of informing the public as to the dangers of improper resource management.

That billions of people do not have access to clean drinking water and that unsustainable agricultural decisions are exacerbating this situation is unacceptable.

Conclusions

Journalists, educators, lawmakers, and advocates must get the message out that clean water does not just entail effluent regulation—a watershed approach as to agricultural, industrial, and commercial impacts is vital to the proper conservation and management of water. Finally, much of this must be accomplished at the local level. Education, nonpoint source pollution, and land use decisions are all done locally, so the education and awareness campaigns needed to address water policy changes must also take place locally.
This breakout session focused on the relationship between critical infrastructure and water quality.

New York City has historically depended on prudent infrastructure planning and building in the last century and vigilant protection of the watershed and existing infrastructure rather than large capital outlay for new infrastructure. Municipalities around the State have an urgent need to replace and expand expensive infrastructure for drinking and wastewater. Costs must be passed on directly to affected residents because there is no stimulus funding available to tie into the NYC water supply system. NY faces $250 billion funding gap over the next 20 years. Priorities in funding must be established as NY approaches the debt cap by 2013. According to one speaker, NY must take advantage of lower-cost projects like “fix it first” projects, natural drainage, and other green infrastructure. This short-term plan should make efficient use of the recession-limited funds available. While a greater water policy is developed, we can work on long-term infrastructure funding mechanisms.

The average citizen has no appreciation of water infrastructure until a crisis occurs, so infrastructure replacement has no political attraction. Changes to the Clean Water Act (CWA) are viewed as weakening of protections, and “efficiencies” are equated to “cutting corners.” With this public viewpoint in mind, and given the current economic downturn, any water infrastructure outlay must be directly related to jobs and long-term indirect economic returns. Planners must link water infrastructure to long-term economic development, i.e., septic systems limit business development. Good water policy can be overlooked in crisis mode—the water shortages issue in Rockland County is on a rushed timeline. The American Society of Civil Engineers gives the U.S. water infrastructure a D-. The water infrastructure crisis is unavoidable unless a water policy is created within the current legal structure. All aspects of water must be included in a comprehensive policy—this will require capital at every level of government. Water policy must address funding, priorities, and innovations and must incorporate sustainability, climate action, and the economic health of the state.

Conclusions

Water might be best covered under a national policy that regards it as a shared resource in all its forms. Currently there is a lack of coherent policy at the federal level; the CWA does not prioritize among users or uses. Also there is no coherent management of all water. Lack of federal policy may hamper creation of state policy. At the state level, this lack of priorities in the CWA confuses the creation of state priorities by creating obstacles to intelligent state prioritization; the state’s hands are tied by federal mandates. NY must look beyond the CWA for its water policy and create financial/tax incentives for green initiatives that protect water resources. Public dialogue about water infrastructure improvements is necessary. Public dialogue can also encourage costs shared among communities. Average citizens must be convinced that sustainable projects are not luxuries.
Land Use Planning & Crisis Management

MODERATOR: Jessica A. Bacher, Senior Managing Attorney and Adjunct Professor of Law, Land Use Land Center, Pace Law School

SPEAKERS: Gina D’Agrosa, Watermaster and Water Agency Director, Westchester County; Robert Goldstein, Professor and Graduates Chair in Constitutional and Military Law for the Department of Law, West Point Military Academy and Adjunct Professor of Law, Pace Law School; William Harding, Executive Director, Watershed Council, New York State Department of State; Robin Schlaff, Special Counsel for Regional Affairs, NYS Department of Environmental Conservation.

This breakout session focused on the relationship between land use choices and environmental impacts and approaches for planning for environmental crises.

Policies in New York State for drought planning, storm water, wastewater, water supply, and watershed/ecosystem dynamics are disjointed and are not integrated. Additionally, local land use planners, and the professionals that review local policies are usually volunteers without training, resources, or future-looking policies under which to operate. In land use and local planning initiatives, the developers come with resources, information, and a strong incentive to not have more “environmental” regulation. Under threats from climate change, subsidies for development in areas that will be underwater in 40 years should be discontinued. Licensing, subsidies, housing and building codes can all be used to facilitate sustainable land use decisions and discourage unsustainable ones. Under the current New York State Constitution, local governance is the key to land use, building, housing, and zoning decisions, so any water policy should focus on getting the local governments the information and policies they should be using and basing their decisions upon. Mitigation of climate change can be done through land use changes at the local level. Adaptation, however, must be done at the local level.

Conclusions

We must, above all, keep our feet on the ground—implementation is often where best laid plans fall apart. A water policy that provides plans, strategies, and resources for local decision-makers is vital. Giving the local governments basic guidelines and tenets that are inviolate is the most effective way to create change. Many changes can be mandated: deny flood-zone subsidies, mandate energy efficiency and mixed-use developments. In a system that defers to local decisions, state-developed model rules, incentives for watershed plans, and state-sponsored science can be effective tools for local implementation of the “right decisions.” This top-down facilitation is vital in many parts of the State where municipalities are, justifiably, placing a priority on education, crime, and health funding systems over environmental funding.
Public Education & Awareness

MODERATOR: Christopher Malone, Associate Professor of Political Science, Dyson College of Arts and Sciences, Pace University

SPEAKERS: Simon Delekta, Director of Voter Education & Civic Engagement, New York League of Conservation Voters; Chris Meyer, Vice President for External Affairs and Information Services, Consumers Union; Jay Simpson, Staff Attorney, Riverkeeper.

This breakout session focused on what could be done to generate momentum for a new water policy movement. A resurgence of the Public Trust Doctrine and citizen engagement through advocacy, outreach, and education were the primary conclusions reached.

The Public Trust
The Public Trust Doctrine is derived from the ancient Romans; our waterways are held in common, the people own the water and have a right to use and enjoy those waters. Polluters cannot “take” those waters from us without our permission. Riverkeeper uses clean water statutes to enforce the Public Trust Doctrine, other organizations use wildlife, bird habitat, and recreational laws to enforce the doctrine. According to the speakers, the Public Trust Doctrine is a fundamental concept recognized by New York State Constitution. We hold the water in trust, but not all perception of this common ownership is readily apparent–some citizens pay for water while their neighbors may not. Most people do not realize the economic and environmental impacts they cause when they violate this public trust. If we can show people that our actions have consequences, and that the consequences affect our own resource, we will be better equipped to sustainably develop a comprehensive water policy.

The Importance of Citizen Engagement
The simple truth of our water policy problem is that there is not enough money to fund all of the necessary changes. Currently, there is a $1 billion shortfall in the funding that the NYSDEC needs to enforce the State’s current water policy. Involving the public can increase our knowledge-base, our ability to reach the public, and our support network for making social and political changes. Citizen suit provisions allow public entities and citizens to enforce water policies develop long-term apolitical monitoring initiatives. Litigation is often the best way to bring people to the table. This public involvement movement must occur at both the state and watershed levels. Only with multi-scale involvement in this water policy innovation process will we be able to get a handle on the current state of affairs. Public involvement will tell us what our drinking, recreation, industrial, ecosystem services, and aesthetic water needs are, and how we should move forward in this policy process. No area in the State is faced with single-use problems; everyone must deal with these competing interests, but we must not fail to consider the relative influences each use has in each watershed.

Conclusions
There should be advocates for policy advancements in at every level of government, and any changes to legislation must be flexible enough to allow for regional and sub-regional differences in stakeholder interests and needs. We must reach out to groups that are not the common water-interested constituents. Corporations and traditionally uninvolved stakeholders are as vital as environmental watchdogs and state regulatory agencies. Higher education institutions must place more emphasis on advocacy and innovation—our state educational resources are invaluable in the fight for clean water and healthy aquatic ecosystems. In the past decade, the Clean Water Act has been violated over a half million times. Fines and paper reprimands were the standard enforcement practice. Only recently have people begun to see the level to which their public water rights have been violated. By making people aware of their interests in clean water, we can spur the involvement needed for effective management and innovation. Simultaneous application of public awareness campaigns, stakeholder involvement initiatives, and financial/political incentives for corporations will allow us to facilitate a new era in water resource management.
New York’s Water Future

MODERATOR: John Cronin, Senior Fellow in Environmental Affairs, Pace University Academy for Applied Environmental Studies and Director, Beacon Institute for Rivers and Estuaries

SPEAKERS: Marcia Bystryn, President, New York League of Conservation Voters; Tony Collins, President, Clarkson University; Alexandra Dunn, Assistant Dean of Environmental Law Programs, Pace Law School; Sharon Nunes, Vice President for Big Green Innovations, IBM Corporation; Carter H. Strickland, Jr., Senior Policy Advisor for Air and Water, New York City Mayor Bloomberg’s Office of Long Term Planning and Sustainability.

This plenary session focused on next steps for New York State’s water, and key actions necessary to make progress.

New York State is an absolute microcosm of water resources that can not be replicated anywhere else. Here, policymakers can bring into focus all of the issues discussed throughout this report; a myriad of factors individually typical of many other regions but collectively unique. The Clean Water Act was a hopeful act. There was a hope that technology would improve, leading to better water quality. Unfortunately, the Act was not driven by an integrated approach to policy management. The idea was more simply that if innovation occurred, we would take advantage of the change and adapt our management. To improve water quality, we now need to get everyone at the table to develop a far-reaching policy for New York’s resources. To this point, environmental regulations and protections seem to be at odds with economic development—but, there is an opportunity to put them into synergy—leading to industries that will create wealth and a sustainable future. Spurring new industries is vital to a comprehensive water policy.

The American Society of Civil Engineers has given our national infrastructure, which includes wastewater and drinking water, a score of D-. It is hard to get people to pay attention to these facts. The general public rarely does so absent a visible crisis. Now, if wastewater treatment plants were shut down, people would notice; if acid rain went unchecked, people would notice; if sea level rise happened in a series of large, discrete inundation events, people would notice; if the NYC reservoir system was not protected across lower New York, people would notice. Fortunately, these catastrophes do not occur. Unfortunately, the public therefore takes little notice. Our “adequate” (D-grade) clean water efforts are perhaps masking the fact that there is a real problem that needs attention. Our existing legal structure categorizes water, our policies protect against known impacts to water quality. But water does not respect boundaries, and with an exploding population in an era of climate change, we will be faced with many uncertainties. We have to set high standards; standards and goals for water quality that will be sustainable over the long-term. This objective will require a lot of information, a large investment, and an educated workforce to take the information and turn it into policy. Water is a shared resource, and the information needs to be shared as well.
We have “adequate” water now, but we can not rest on our laurels—if we were in the southwest we would be meeting under crisis conditions. Taking a progressive and forward-looking approach to this issue requires that we tell ourselves that there is a crisis. If we are going to have a proactive water strategy, we are going to have to show the positive impacts it can have on people’s lives. PlaNYC, a program designed to blend economic development with environmental awareness, received a lot of enthusiasm statewide. We need a policy that builds on this excitement and rewards proactive initiatives. We have not yet missed our opportunity to make meaningful change; New York State is fortunate to be in a region not yet decimated by drought, wildfires, misappropriation of water resources, or the worst water pollution. Public awareness resulting from water crises in other regions will spill over into New York. If New York can become a leader in sustainable water use and economically-efficient water policies, we can attract the businesses and jobs that value a clean ecosystem.

What is a water crisis in New York? How do we set standards for one? Is it based on our infrastructure, or the lack thereof? Or do we base the definition of our crisis on our adaptive capacity—the ability to change with the environment? Crisis can be defined by ‘volatile costs’—when it starts impacting people’s pocketbooks, the people will react. With water, subsidies make it so that people pay more for cable than for water. The counties and municipalities that pay for the infrastructure and contamination clean up costs are the ones that are hit hardest by a water cost crisis. Another form of crisis is when the public is impacted personally—when routine is disrupted. The challenge with the water system is that it has been managed so well. When someone turns on their tap, water flows. Making it personal is the way that people perceive it as a crisis—only then will they take action or support policy changes. If problems are episodic (like most water problems are) then showing people how it affects them becomes more difficult.

How do you elevate water policy? With executives? With the public? How do you create the conditions for funding it? Strategically we may have to embed and frame water policy in a broader, sustainability, climate action, or land use agenda. Because this issue cuts across disciplines and industries, our water policy needs to be a part of the policies for all of these disciplines and industries. We have to show that the economic health of this State is contingent on it being sustainable-water policy, air policy, and zoning policy are all part of that sustainability. We have to embed the issue in a broader agenda that involves energy policy, transportation, and environmental justice. The groundwork for this integration is based in public education campaigns and the re-building of New York State’s economy.

In that vein, another question arises: In order to develop new, innovative policy, how do we develop an identity for water—is it a right, a commodity, an organism? How do we address water? Is it a fundamental human right? A product to pay for? Is this an opportunity to define what water needs to be in order to get a policy that lasts into the future? In the United States, we do not have full cost pricing for water because there are people who could not pay what it really takes to treat a gallon of water. Water, therefore, is seen as a fundamental right. Given this viewpoint, should having a good water policy mean that the government provides access to clean drinking water for free? If so, this can lead
to two very different policy proposals. First, the right to clean water for drinking may cause NYS to prohibit any action that can cause adverse impacts on our free, clean, water. Second, the right to clean drinking water may cause NYS to spend huge sums of money to treat and purify a resource that was once clean but that we allow to be polluted.

We all gravitate towards infrastructure, engineering, and economic growth, and leave behind ecological issues. Yet, ecosystem health is essential to human health. Water is a right not only to drink, but to make a living as a fisherman, boat, swim, and otherwise utilize the resource. The value that these aspects of water use can add to our State’s economy is a vital component to any environmental-economic integration. In this regard, we need to both prioritize projects and uses. In some cases, this might result in a change in the status quo—we might have to change designated uses and stop projects. Adaptive management requires a system that can change with the circumstances; the current state of water use and project prioritization is essentially locked-down—changes can be made, but very rarely are.

**Conclusions**

Water is a piece of the environmental system, as is economic development—it is a system that has multiple parts. For our state’s best interests, both environmentally and economically, we should look to advance the policies of proactively keeping our waters clean, rather than fall into a system of reacting to pollution. The most efficient system minimizes externalities. The more we have to spend to turn water back into the form we originally found it in, the less efficient our system becomes. If we rely too heavily on politics or economics or development, we risk coming to conclusions that are unsustainable. Similarly, any water policy must be capable of providing strict state-wide vision without overlooking the importance of local conditions.

What would a new water policy board or agency look like? To be sensitive to existing structures, regulatory, political, and commercial, do we need to create a new keystone/capstone agency? What should this commission, group, task force, or agency be empowered to do? There must, at the very least, be authority to initiate research, foster public-private-academic partnerships, and work with and among state and local agencies. This group needs to be scientifically and politically neutral. This group needs to have legal, economic, environmental, and political expertise. This group needs to have connections with tribal nations, municipalities, and the ability to work beyond the borders of the State—as the need arises. This group cannot be constrained by traditional state-government rules on collaborations and party affiliations.

There was a time when part of making policy in NYS was with our eye on being an example for the rest of the nation—a pioneering state when it comes to environmental policy. We need to create a water policy movement at the top levels of State government that can positively impact water quality at watershed, ecosystem, and local scales. We need to become leaders using the best science, the top engineers, and most thorough policymakers. The issue of water resource policy cuts through every aspect of the State and needs attention and support equally significant.
Seven Generations and a Call to Action

Adaptation of the concluding remarks by Professor Nicholas A. Robinson, University Professor for the Environment, Gilbert and Sarah Kerlin Distinguished Professor of Environmental Law, Pace University School of Law

We are not headed into a crisis, we are already in one. According to the Intergovernmental Panel on Climate Change, the northeastern United States water cycle is changing and the ecosystems are shifting. In 1992, the world came together at the United Nations Earth Summit in Rio de Janeiro to prepare Agenda 21, “think globally, act locally.” Two decades later, we are living examples of business as usual—our development has thought locally and acted as such, and our environmentalism too frequently is re-actionary. We have waited for leaders to come along and force the creation of something like PlaNYC; we wait for industries to provide funding and initiative; we wait until problems become insurmountable.

In an era of climate change, New York State must immediately break the mold and cease to operate as usual. We have the State Environmental Quality Review Act and the Clean Water Act, we have state agencies that were designed to promote and implement water conservation, and we have systems for wetlands protection and local land use adaptation planning. We have enough water laws on the books to resolve all the problems that we expect to see occur in the next 20 years because of climate change and skyrocketing coastal population growth. Our neighbors are taking action, now we must make the bold step to do so. Massachusetts recently enacted a comprehensive coastal and ocean plan to the use, development, and conservation of its state waters and aquatic and marine resources. Rhode Island has agencies and planning in place that is already beginning to address sea level rise and protect its citizens against storm surge and coastal flooding. Insurance companies in New York and New Jersey are developing new systems of micro-insurance for nations abroad, but not for their local environments.

While our neighbors and corporate citizens are actively climbing towards the future, New York State is stuck in the mud. In our fight against acid rain we problem-solve by adding lye to streams and lakes. Our management of Long Island Sound ignores nutrient loading that washes in from high school athletic fields, golf courses, and farmlands. We once had robust lobster and oyster beds, yet we concede defeat by “changing uses” instead of planning for the species’ recoveries. Lobsters are now gone from Long Island Sound. Rye, New York, mere miles from Manhattan, was recently flooded, and residents had to live in make-shift Red Cross facilities because we have no comprehensive plan for dealing with climate change refugees here at “home.” Forty percent of New Orleans residents have not moved back—a situation we might face if we don’t act now. Indigenous Nations have seen the connection between water and life for millennia; we must also keep an eye on the human aspects of water policies in order to ensure that our place in this ecosystem is sustainable.
Finally, we do not need to reinvent the wheel. We have enough water law on the books to be a leader in spurring innovation and planning for the future. Our front-lines problem is that in the past twenty-five years we have lost two-thirds of the employees of the water branch of the Department of Environmental Conservation, and we have local and county governments waiting for state agencies and state legislatures to get the ball rolling again. New York has the authority now to establish a New York State Council of Environmental Advisors, but we are not implementing this authority. Among the myriad discussions that occur daily at the State-house, the environment is rarely if ever given face time with our leadership. As one of the states bordering the Great Lakes, we have shown our capacity to act—the Great Lakes Compact brings together First Nations, state regulators and watershed planners to effectively manage a truly unique global resource. Now, we need to take this model and apply it to the entire State’s watershed, or, at least, to the macro-water systems within our borders including the Hudson, Susquehanna, and Adirondacks ecosystems. Each system will need leaders, each system will require innovative policies, and each system must being to adapt to make multiple-use sustainable.

The Onondaga Nation, among others historically situated in the territory of New York State, manages the environment with an eye towards the next seven generations. Currently, we are not looking out seven generations in our programming and management decisions. As we face population growth, consumption and energy growth, and climate change, we need to heed the wisdom of those peoples that lived in this ecosystem long before the Dutch and British arrived—we need to plan and implement policies that will provide for our sustainability across the next seven generations.
Conference Conclusions and Policy Recommendations

A summary of overarching conclusions reached at the Conference

1. We need to foster and promote a policy and technology brain-trust in New York State that brings together academic knowledge from scientific, legal, and social programs at our schools and universities. Only through such science-and policy-driven change will we succeed in fostering a new era of innovation.

2. We need to simultaneously consider all New York State waters in one resource plan and cease efforts to develop separate policies for storm water, drinking water, wastewater, etc. The Clean Water Act was designed to manage water on a sector-by-sector basis and to foster innovation. However, this form of management has not led to clean water and has not spurred innovation.

3. We need to ensure that point source, nonpoint source, and sewage-based pollution is reduced and ultimately eliminated. In short, we need to succeed where the Clean Water Act has not.

4. We need to recognize and address the often-overlooked contributors to water pollution—such as acid rain—in an effort to manage all inputs to our water cycle.

5. We need to recognize and maximize the positive impacts that can result from watershed and land use planning. By treating clean water and healthy aquatic ecosystems as fundamental rights, we can shift our focus away from reactionary pollution remediation to progressive pollution prevention.

6. Finally, we need a wide-ranging consortium of all New York State water resource stakeholders; from the Great Lakes to the Long Island Sound, from industry to academics, and from the legal world to the scientific. A new, successful water policy can only happen with the support, hard-work, and dedication of all stakeholders, including the citizens of New York State.
Appendix – About Host Organizations

The Pace Academy for Applied Environmental Studies is an interdisciplinary Center for Excellence at Pace University. Pace Academy engages all schools and departments across Pace to provide a rigorous program of environmental study based on interdisciplinary learning, critical thinking, applied research, and service experience that is founded in the talents and offerings of the University. Externally, Pace Academy engages stakeholders by promoting policy and practices that reflect the University’s research, scholarship, and application of the best environmental practices.

Regularly ranked among the top environmental law schools in the nation by U.S. News & World Report, Pace Law School is home to some of the world’s leading experts in environmental law and policy. Located in White Plains, NY, Pace Law School takes advantage of its proximity to both New York City and the greater upstate regions of New York State to bring students, professionals, and New York State communities together for a better environment. The Law School’s Center for Environmental Legal Studies oversees Pace Law School’s environmental academic programs and conducts key research in areas such as energy conservation, international environmental law, and sustainable development. The Center publishes GreenLaw, a journal of the environmental law program. The Center is a voting member of the International Union for the Conservation of Nature (IUCN), the world’s oldest and largest global environmental network.

The Beacon Institute For Rivers and Estuaries, with offices in Beacon (Dutchess County) and Troy (Rensselaer County), New York, is a not-for-profit environmental center for scientific and technological innovation that advances research, education and public policy regarding rivers and estuaries. Beacon Institute implements its mission through a multi-disciplinary focus on science and technology, education and policy. Teams of scientists, engineers, educators, historians and policy experts take an integrated view of how communities and ecosystems interact as they create new mechanisms through which humans can gain a more sophisticated understanding of rivers and estuaries for the benefit of public health, economic development, restoration of ecosystems and quality of life.

Contact Information

Pace University Academy for Applied Environmental Studies
78 North Broadway, White Plains, New York 10603
www.pace.edu/academy
Telephone: (914) 422-4077
Facsimile: (914) 422-4075
E-mail: paceacademy@pace.edu

Pace Law School Center for Environmental Legal Studies
78 North Broadway, White Plains, New York 10603
www.law.pace.edu/environment
Telephone: (914) 422-4122
Facsimile: (914) 422-4261

Beacon Institute for Rivers and Estuaries
199 Main Street, Beacon, New York 12508
www.bire.org
Telephone: (845) 838-1600
Facsimile: (845) 838-6613