HUDSON RIVER ENVIRONMENTAL SOCIETY

CLEAN WATER ACT AT 40: FACING THE FUTURE

Date: Monday, May 7, 2012

Abstracts

1. **Title:** 40 Years Cleaning up the Hudson River Estuary: Where are we heading and why?

   Speaker: Frances Dunwell, Hudson River Estuary Coordinator, NYS Department of Environmental Conservation

   Abstract: When the 1972 Clean Water Act was passed, it set a goal of a fishable swimmable Hudson. Now forty years later, we are making progress towards that goal, but we are still not there yet. To put things in perspective, in 1978, state officials sampled the waters of the Hudson at Albany in summer time and found zero oxygen in the water and only a single fish swimming in circles at the surface and gasping for air. Now, the river at Albany supports thriving populations of fish and a robust sport fishery. Large segments of the river now meet the standard for swimmable waters or the higher classification for drinking water supplies. Yet from the standpoint of being able to swim in the Hudson from the Adirondacks to the harbor or being able to safely eat fish caught from the river we still have a ways to go. Cities in the upper estuary, including Rensselaer and Troy do not yet disinfect their sewage treatment plant effluent.

   All the cities and towns up and down the river have a stake in cleaning it up. The problem is facing up to the very large price tag for clean water. Pipes built under river cities a hundred years ago are failing—some of them are wood or brick. Sewage treatment plants built 30 years ago with a design life of 30 years need to be updated and expanded. At some locations, combined sewer overflows are still dumping sewage into the Hudson when it rains. Storm water and illegal hook-ups to storm drains are putting pollution into river tributaries and storm systems.

   Meanwhile, the sediments of the Hudson still carry the burden of toxic contamination from the era when heavy metals, PCBs other toxic pollutants were freely discharged into the river. The Army Corps in those days had designated the Hudson as an industrial waste canal. The river is still designated as a Superfund site due to PCB pollution. That's one more reason why one recent report named the Hudson as the nation's 24th most polluted rivers. The good news is that PCBs are now being cleaned up on the upper Hudson, and permit conditions and grants are in place to achieve disinfection of polluted effluent in the capitol region.

   Continuing to clean up the Hudson will be expensive, but it will also pay off in terms tourism as well as providing a healthier experiences for people who swim, kayak and windsurf on the Hudson today. Clean water has already enhanced shoreline land values and galvanized a revitalization of the waterfront. Regional Economic Development strategies for the Mid-Hudson

and Capitol regions recognize the value of a vital clean, beautiful river to the future of the region.

2. **Title:** Fishable-Swimmable: Perfect Together

   Speaker: Douglas Pabst, Senior Policy Advisor, New York-New Jersey Harbor and Estuary Program, U.S. Environmental Protection Agency, Region 2

   Abstract: Everyone can agree that implementation of the Clean Water Act over the past 40 years in the Hudson River Estuary has resulted in significant environmental improvements. We've gone from no sewage treatment, to primary, to secondary, and further in some cases. These infrastructure and other improvements have resulted in significant progress towards the ultimate goals of fishable-swimmable water. There is also broad agreement that there is more work to be done and there are new challenges (emerging contaminants, population growth, climate change, aging infrastructure, and reduced funding levels) to confront. However, reasonable people can, and in this case do, disagree over the definition of fishable-swimmable. Is it numeric, narrative, average, statistical, based on public opinion, an enigma, a paradox, ever achievable or all of the above? If we don't know where we're going, we can't get there. This talk will focus on the Clean Water Act efforts of the last 40 years, dive into the fishable-swimmable debate, discuss new challenges, and look to the future from the federal perspective.

3. **Title:** "Successes and Challenges of the Clean Water Act Forty Years In: What would Ed Muskie think?"

   Speaker: Phillip Musegaas, Esq., Hudson River Program Director, Riverkeeper, Inc

   Abstract: Since 1966, Riverkeeper has played a unique role as the public's watchdog and champion of protecting and restoring the Hudson River Estuary. The passage of the Clean Water Act, with its seminal citizen enforcement provision, allowed us to transition from seeking bounties under the Rivers and Harbors Act to bringing Clean Water Act enforcement actions against polluters in federal court, often resulting in the cessation of pollution and improved protection of the Hudson. More recently, our work has led to deeper involvement with certain

   fundamental tenets of the Act, from debates over cooling water intake technology to the use of geometric means to determine compliance with water quality standards for primary contact recreation. My presentation will reflect on how the implementation of the Clean Water Act has both benefited and bedeviled Riverkeeper's efforts to preserve the Hudson over the past forty years, with a focus on current challenges and opportunities, as well as recommendations for how we can better hew to the vision set out by Senator Muskie when he engaged in the drafting of this pivotal law.

4. **Title:** Land Use and the Clean Water Act: A Practitioner's View of 40 Years in the Lower Hudson Watershed

   Speaker: David Church, Department of Planning, Orange County, New York

   Abstract: The 40th anniversary of the Clean Water Act provides an opportunity to assess not just the important and intentional influences of the Act on water quality but also on land uses. Using the Mid Hudson region as an example, such influences on land use are less intentional and less clear.

   Land use and water (both quality and quantity) are integrally related. And progress in strengthening this relationship has been realized. Water supply is now more insured and secured, water-based recreation and habitat is enhanced, and waterfront neighborhoods improved. Yet overall land use trends remain dominated by market realities and land focused, not water focused policies. With the Clean Water Act's emphasis on how and not where development occurs, with its weak regional context, and with many of the Act's provisions triggered as reactive and not proactive towards land development, there remains much to gain in strengthening this land use - water relationship.

5. **Title:** Will New York Harbor ever be “Clean” or just Cleaner?

   Speaker: Dennis J. Suszkowski, Science Director, Hudson River Foundation

   Abstract: The Clean Water Act resulted in remarkable improvement to the quality of New York Harbor waters. Vast amounts of raw sewage were curtailed, toxic discharges were brought under control, and further encroachments into water and the few wetlands areas that were left were finally subject to environmental review. Water quality criteria were established to specify fishable and swimmable standards to guide the process of environmental improvement. While tremendous progress has been made, much of the waters of New York Harbor are not currently considered fishable or swimmable by regulatory standards. Will they ever be? Are urban waters like New York Harbor destined to never realize the goals of the Clean Water Act? This presentation will characterize the challenges facing the Harbor and discuss possible future scenarios.

6. **Title:** Global Water Crisis? Yes … Closer Than You Think

   Speaker: Charles J. Vörösmarty, Director, CUNY Environmental Cross-Roads Initiative and Professor, Civil Engineering Department, The City College of New York

   Abstract: Fresh water is widely regarded as a fundamental, if not the most critical, natural resource. It underpins countless benefits to society and is pivotal to the success of the food and energy sectors, industry and commerce, and an expanding urban domain. It also provides essential cultural, recreational, and aesthetic values. Water is also critical to the maintenance of ecosystem services and biodiversity. Recent analysis of the global water system using a high

resolution geospatial approach demonstrates that a wide array of stressors combine to produce a pattern of worldwide threat to much of the fresh water resource base that sustains human water supply as well as aquatic biodiversity. A pervasive, globally-significant pattern of management is evident in the contemporary setting, through which impairment accumulates as a function of wealth, but is then remedied by costly, after-the-fact technological investments. This strategy of treating symptoms while leaving unabated the underlying causes is practiced widely across rich countries, but it strands poor nations and much of the world's aquatic lifeforms at high levels of vulnerability.

The Northeast region of the United States serves as an ideal example of the major changes that have taken place with respect to the hydrologic cycle over national and indeed global scales. Using a combination of biogeophysical, social science, and historical scholarship techniques -- including the development of a prototype Digital History Archive-- a consortium of student-mentor teams pursued an interdisciplinary synthesis goal, that is: To quantify the widespread alteration of hydrologic systems over local-to-regional domains focusing on the Northeast Corridor of the United States over a 500-yr period (1600 to 2100)—The 500-Year Challenge. Pursuing this centuries-scale analysis has enabled us to gain insight into how water management strategies first became established and ultimately entrenched in the modern management of water systems, particularly across developed regions. This presentation will summarize some of the major findings of the consortium's research agenda, including the development of frameworks to foster cross-disciplinary research perspectives, the use of hydrologically-meaningful metrics that can be engaged by non-hydrologists, and some key developments in the evolution of human-water systems over a 500-year time horizon that lend insight into the ways in which present-day societies, the world over, manage their water systems.

7. **Title:** Sources of Endocrine Disrupting Compounds in Surface and Groundwater

Speaker: Patrick Phillips, Hudson River Basin NAWQA Chief, USGS New York Water Science Center

Abstract: The contribution of combined sewer overflow (CSO) discharges to annual loads of steroid hormones and other wastewater micropollutants have not been widely quantified due to difficulties in measuring flow and collecting representative samples from these discharges. Flow-weighted samples of untreated CSO discharges and treated discharges collected from a wastewater treatment plant (WWTP) in Burlington Vermont, USA, show that CSO discharges can contribute between 50-90% of the annual load for many hormones and wastewater micropollutants (WMPs) that are well removed during wastewater treatment. Concentrations of estrogens, androgens and wastewater micropollutants are generally 10 times higher in untreated flows resulting from CSO events than in treated wastewater flows. Hormone and WMP concentrations in untreated samples generally decreased with increasing discharge, indicating that rainfall runoff mixing with wastewater should dilute concentrations. By contrast, concentrations of hormones and WMPs in treated samples generally increase with increasing discharge, and reflect the decrease in removal efficiency with increasing flow and not from dilution, indicating that dilution from rainfall is a less important factor than reduced residence

time during treatment for most compounds. Although untreated discharges resulting from CSO flows represent only 10% of the total annual water discharge (untreated CSO flow plus treated flow) from the WWTP, these discharges can represent a disproportionate amount of the annual load for several hormones and WMPs, particularly for compounds that are well removed during wastewater treatment. Compounds with high (>90%) median treatment removal efficiencies, including most androgens, estriol and caffeine, have 40% to 90% of their total annual load from untreated CSO discharges. Compounds that have low (<50%) removal efficiencies (including benzophenone, bisphenol A and galaxolide), by contrast, have relatively small amounts (<10%) of the annual total load from untreated flows. These results show the importance of untreated CSOs for understanding sources of hormones and other WMPs.

8. **Title:** Outside the scope of the Clean Water Act: The ecological consequences of contaminants of emerging concern on freshwater ecosystems

Speaker: Emma J. Rosi-Marshall, Cary Institute of Ecosystem Studies

Coauthors: Heather Bechtold and Dustin Kincaid, Cary Institute of Ecosystem Studies
Todd V. Royer, School of Public and Environmental Affairs, Indiana University
Miguel Rojas and John J. Kelly, Department of Biology, Loyola University Chicago

Abstract: In celebrating the 40th Anniversary of the Clean Water Act (CWA), it is important to recognize the advances made, while at the same time recognizing the challenges that lay ahead. For example, the CWA currently lists 127 priority pollutants for regulation which form the basis of current discharge regulations. However, it is possible the list of priority pollutants is not completely comprehensive of the compounds that may influence the health of surface waters. An emerging concern is the presence of pharmaceutical and personal care products (PPCPs) in surface waters that are not listed and therefore are outside current scope of the CWA. In this talk, we will review the current literature on the potential ecological consequences of these compounds on aquatic ecosystems and will highlight some our recent data that illustrates how some ubiquitous PPCPs, alone or in combination, influence stream biofilm community function and structure. We will discuss the potential consequences for higher trophic levels and important ecosystem processes. We will also discuss some possible solutions to these water quality challenges. The great strides of the CWA have helped lead to the reduction of many contaminants in surfaces waters in the US, but recognition of the challenges that lay ahead for clean water and identifying potential solutions will help shape the future of clean water.

9. **Title:** Trying to Achieve Clean Water Act Goals “On the Cheap”

Speaker: Jeffrey Myers, Director, Bureau of Water Assessment and Management, NYS Department of Environmental Conservation

Abstract: The Clean Water Act has led to great success in restoring recreational uses and aquatic communities in lakes, rivers and streams across the nation – including the Hudson River. In spite of this success, some water quality issues – even after 40 years – are proving

difficult to resolve. For the most part, the hurdles that remain are not technical, but a matter of resources and priorities. Efforts to fully achieve Clean Water Act Fishable/Swimmable Goals – in ALL waters, 100% of the time – must compete with other equally-important societal needs for diminishing public funding. These efforts need to identify most effective and realistic roles for government, business and advocacy groups, while also enlisting the support of the general public. Any plan to chart future activities to reach Clean Water Act goals needs to recognize that the problems of today, as well as the current public policy landscape, is much different than it was in 1972 – and either adapt to this reality or change it.