



**Hudson River Watershed Alliance**  
**Discussion Paper: Water Availability, Efficient Use and In-Stream**  
**Flows in the Hudson River Watershed**

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**Policy Statement:**

While water *quality* has been a priority throughout many Hudson River programs in recent years, less attention has been paid to issues regarding the *quantity* of water in streams and watersheds and how withdrawals and uses of water affects our watersheds. The Hudson River Watershed Alliance encourages future data collection, monitoring, citizen and community science, and conservation efforts focused on balancing our use of water for various purposes with protecting in-stream flows, biodiversity and ecosystems to ensure the sustainability of our freshwater resources and drinking water supplies in the Hudson River Basin. Our objective is to bring greater discussion and focus on issues of sustainability of both water quality and quantity for our freshwater resources in the Hudson River Watershed.

**Background:**

In the Hudson River Watershed, water *quality* is recognized as a clear priority in many projects, laws and public awareness programs. Added to that, national public opinion polls consistently indicate that water quality is a top environmental concern for many Americans. For example, a 2015 Gallup poll indicated that 55% of Americans surveyed said they cared a “great deal” about the pollution of drinking water, above other environmental concerns including climate change.<sup>1</sup>

Questions, concerns, and public awareness regarding the *quantity* of water available in streams, groundwater and individual watersheds have not received nearly as much attention in the Hudson River Basin in recent decades, although this is increasingly an area of concern in other parts of the country and the world. In its *Global Risks 2015 10th Edition*, the World Economic Forum ranked a looming water crisis as highest global risk based on impact to society and as a measure of devastation, above potential fiscal crises or even weapons of mass destruction.<sup>2</sup> The extent of this water crisis has not yet

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<sup>1</sup>Jones, Jeff, and Lydia Saad. March 2015. *Gallup Social Series: Environment*.

<http://www.gallup.com/poll/182105/concern-environmental-threats-eases.aspx> accessed on December 28, 2015.

<sup>2</sup>World Economic Forum. 2015. *Global Risks 2015, 10<sup>th</sup> Edition*, <http://reports.weforum.org/global-risks-2015/> accessed on October 25, 2015.

been felt in the Hudson River Basin, but we have begun to see the beginning of a shift to closer attention to water uses and limits on supplies in some places at the municipal and county level.

One key reason that less attention has been focused on water quantity is that New York State, like other parts of the Northeast US, is considered to be relatively rich in water resources with abundant rainfall compared to other areas. The Hudson River Watershed is a 13,400 square mile drainage basin, with eleven major subwatersheds, typical annual precipitation exceeding 38 inches, more than 65 major tributaries, and an average flow at the Troy dam of 13,600 cubic feet per second.<sup>3</sup> Despite this general abundance of water resources in New York State, often lulling our region into a 'myth of water abundance,' a 2010 study by the Natural Resources Defense Council indicated that 16 counties, including three in the Hudson River Watershed (Albany, Saratoga and Schenectady), may be at risk for water shortages by mid-century as a result of the effects of global warming<sup>4</sup> compounded by local over-use and distribution challenges. Increasingly, precipitation comes in heavy storms separated by extended dry periods, resulting in cycles of flooding and drought unfamiliar to the region and its water planning strategies.

Prevailing water management paradigms over the past 100 years create a situation in New York State where much of the water withdrawn from a stream, reservoir, lake or groundwater aquifer for domestic, municipal, agricultural and commercial uses is not returned to the same waterbody in the same location after it is used. Our water supply and wastewater conveyance systems move water around, often for long distances, with little regard to the impacts on the local watershed where they originate. Such inter-basin transfers, water withdrawals clearly affect what is left in streams and watersheds for recreation, ecosystem health and biodiversity. All of these things depend on having sufficient amounts of water available in streams, lakes, ponds and wetlands, and in the groundwater formations interconnected to the water resources on the surface.

In many places, the changes in streamflow and abundance of water in local ecosystems created either by new weather patterns or by human development have not created impacts significant enough to be taken into account, even where withdrawals have been ongoing for many years. One result is that, for the most part, decisions and concerns about the availability of water for existing users and communities, and for future growth, have mainly been viewed by many community leaders and other stakeholders as matters of engineering and the relative costs and benefits of various options for building infrastructure to obtain, treat and distribute potable water. In this context, it is perhaps understandable that water supply development and management issues have not been

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<sup>3</sup><http://ny.water.usgs.gov/projects/hdsn/fctisht/su.html> accessed on October 25, 2015.

<sup>4</sup>Tetra Tech and Natural Resources Defense Council. 2010. *Water Supply Sustainability (2050)*.

<http://www.nrdc.org/globalWarming/watersustainability/> and

[http://www.nrdc.org/globalWarming/watersustainability/NewYork\\_With\\_Climate\\_Change.pdf](http://www.nrdc.org/globalWarming/watersustainability/NewYork_With_Climate_Change.pdf) accessed in December 2015.

discussed or understood much with respect to the overall availability and sustainability of water in local watersheds.

However, for some municipal leaders, watershed organizations, professionals involved in water resources and land use planning, and others involved in water management and policy in the region, this is starting to change. In a number of places, water availability and the management of withdrawals, use and discharges of water back to the environment have become priorities for planning, monitoring, education and citizen engagement in recent years. For example, the New York State Department of Environmental Conservation, after a decade of discussion, is now taking steps to finalize a Technical and Operational Guidance document on *Flow-Related Conditions in Water Withdrawal Permits* outlining in-stream flow preservation objectives, requiring water withdrawal permits from an increasingly wide range of water users. The US Geological Survey has also recently developed the stream flow estimation tool called *Streamstats* for streams without gaging stations.

Notwithstanding, as a complicating factor, information about water supplies, in-stream flows and how water is being used and managed is often compartmentalized in one or more state agencies and/or at the municipal level. As the authors of *Hudson Valley Water: Opportunities and Challenges* write, “Part of the challenge is that although water is a regional resource, we govern ourselves in hundreds of localities that, collectively, make the key decisions about our region’s future.”<sup>5</sup> Municipalities, watershed groups, and citizen scientists and activists, who advocate at the forefront for protecting and managing water resources and water supplies within a watershed or sub-watershed, often do not have the necessary information on water inputs and outputs, and therefore water availability and in-stream flow, to be able to assess or manage this resource effectively and sustainably.

The Hudson River Watershed Alliance advocates increasing attention to and focus on these issues of water availability, efficient use and in-stream flows to ensure the sustainability of our freshwater resources and drinking water supplies in the Hudson River Watershed. As the effects of climate change and changing weather patterns, increasing urbanization and other land use changes, competing uses of water resources for development, industry and agriculture, and other factors put a strain on this resource in the Hudson River Watershed, as in other places around the world, it becomes critical that data, information and knowledge about our water sources and water quantity become accessible to community groups, municipalities and others.

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<sup>5</sup>Cuppett, Scott, and Russell Urban-Mead. 2010. *Hudson Valley Water: Opportunities and Challenges*, Discussion Brief #4 – Fall 2010, Center for Research, Regional Education and Outreach, State University of New York at New Paltz.

## Goals and recommendations:

Based on the above outlined considerations, the Hudson River Watershed Alliance recommends the following future actions:

- **More data collection at the sub-watershed and watershed level on water availability, how it is being used, and in-stream flows throughout the Hudson River Watershed, using tools such stream gages and water budgets.** In this context, one high priority is protecting and restoring funding for stream gauges operated by the US Geological Survey to prevent more of them from being shut down and to re-activate previous gauges or install new ones at key locations. Water data and tools for understanding water use and availability are currently difficult to access, found in different government agencies and stored in different formats. Making this data more accessible, consistent and user-friendly should be a high priority in New York State. Government agencies are best suited for making data and tools for understanding water data more accessible.
- **Greater coordination, collaboration and information sharing among different municipal, county and state agencies as well as nonprofit organizations, watershed groups, colleges and universities on water supply planning and management.** Information is currently compartmentalized, and unifying the different groups and agencies charged with managing water use and creating a regional dialogue on these issues would greatly increase the ability to plan for the future.
- **Increased monitoring of and education on available water supplies and uses.** With so much water planning and management happening at the local municipal and subwatershed levels, more attention should be focused on providing resources to these municipalities and watershed groups to monitor water supplies and providing critical education to them on water supply planning. Decisions on being made about water supplies every day in the Hudson River Watershed, and we need to ensure that municipalities have adequate information to make decisions that ultimately affect their water supplies in the long term.
- **Recommend modifications to the 6 NYCRR 601.18a exemption for interbasin transfers of under 1 MGD, to require evaluation of the ecological and minimum stream flow sensitivity of the providing basin as a precondition for the exemption.**
- **Greater attention on the efficient use and conservation of existing water supplies.** Water conservation is not something we often talk about in the Hudson River Watershed, but conserving our water supplies should be integrated into existing water planning and water education programs, not only in times of drought but also in a general sense of planning for the future when water supplies may be more unpredictable due to the effects of climate change.

- **Increased funding for municipalities, organizations, agencies, colleges and universities for water infrastructure upgrades, water conservation, preparation of water resource planning and allocation studies, and efficient use strategies.** Allocating more funding and research to water supply and resource planning should be made a priority.

In short, we hope that this discussion paper serves as a first step in arguing for more resources, funding, research and education on water availability and efficient use in the Hudson River Watershed. Both water quality and water quantity should be viewed together as critical priorities for all agencies, organizations and government entities charged with managing and addressing water resource issues.

**Links and resources:**

- NYS Department of Health –Drinking Water Data  
[https://www.health.ny.gov/statistics/environmental/public\\_health\\_tracking/environmental/water.htm](https://www.health.ny.gov/statistics/environmental/public_health_tracking/environmental/water.htm)
- USGS – Water Data for the Nation  
<http://waterdata.usgs.gov/nwis>
- USGS – Current Water Data for New York  
<http://waterdata.usgs.gov/ny/nwis/rt>