

# RIVER WATCHER REPORT

Improving the water quality of the Hudson River and all its tributaries through education, community involvement, and stewardship.



**Cataract and Millington Brook, Warren County, NY**  
Water quality trends for years 2002, 2003, and 2004  
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## Purpose/Background

During each August of 2002 through 2004, Hudson Basin River Watch conducted bioassessment surveys on the Cataract and Millington Brooks as part of a stream bioassessment training program. Sites were assessed for physical, chemical, biological, and bacteriological parameters. This report provides an abbreviated summary of the general water quality and water quality trends at those sites. For more extensive background information on the watershed, site locations, rationale of data collected, methods, bibliography, and quality assurance and quality control protocol the reader is directed to the 2002 Cataract and Millington Brook report available at: [www.hudsonbasin.org](http://www.hudsonbasin.org). Complete physical, chemical, biological, and bacteriological data is available from the author.

## Results/Discussion

Physical site assessments, ranging from good to excellent, remained relatively unchanged for each site over the survey period.

A comparison of the chemical data from each site over time showed only slight variations.

Conductivity measurements dropped from 190  $\mu\text{s}/\text{cm}$  at sites 2 and 3 during 2002 and 2003, to 110  $\mu\text{s}/\text{cm}$  in 2004. This change probably occurred because of a progressive increase in water levels over time; higher water volume decreases conductivity as dilution of cations and anions occurs.

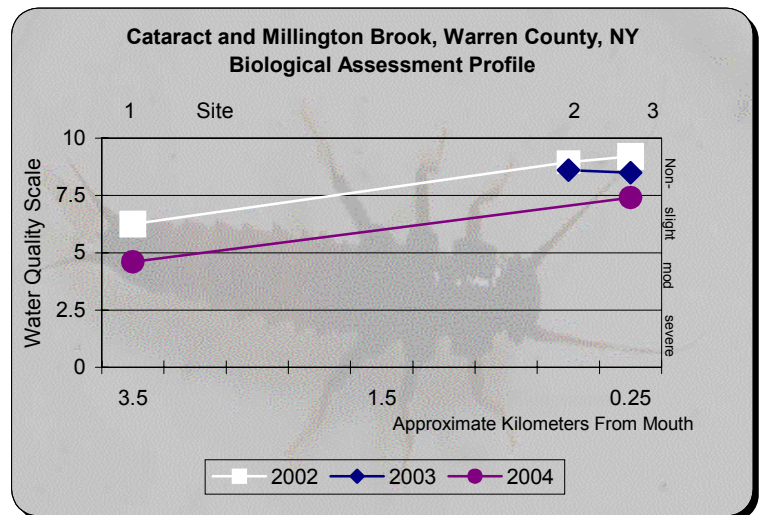
The mean *E. coli* bacteria result increased progressively over each survey year from no colonies initially to 10-colonies/100 ml of water, then 180-colonies/100 ml of water. Progressive increases in total coliform numbers also occurred during this time. The increase in bacteria was probably secondary to heavy rainfall that occurred during the spring/summer of 2004, and is suggestive of non-point source nutrient inputs.

Biological Assessment Profile (BAP) ranged from non- to moderately impacted water quality. While site 1 indicated slightly to moderately impacted water quality, based on the invertebrate fauna, it was apparently related to the effect that Pack Forest Lake exhibited on the benthic community. Benthic fauna at the outflows of most lakes, ponds, and impoundments are affected from the lack of upstream communities to provide a resource for colonization through downstream drift and from the

increase of plankton, as a food resource, from the lake (Hynes, 1970). Additionally the benthic community at site one also exhibited characteristics of headwater stream sites (Bode *et al.* 2002). Individual indices at site 1 indicated these fauna changes were occurring from the lake effect and not a pollution problem. According to Bode *et al.* (2002) the corrective action for impoundment effects and headwater stream sites is to adjust the water quality assessment up one category to reflect its genuine water quality.

The decline in the 2004 BAP at sites 1 and 3 was likely related to the spring/summer's heavy downpours and their ensuing high flows. The increases in the amount of bacteria that entered the water column appear to have made available a food resource that boosted the richness of suspension feeding organisms. When compared to prior survey years an increase in the richness of Hydropsychidae and Philopotamidae, both suspensions feeding caddisflies, occurred at each site in 2004. This increase lowered the 2004 BAP score for both sites one and two. The source of the bacteria could not be determined from this study; however, it is likely occurring from non-point sources.

It is expected that the Cataract and Millington Brooks will continue to be sampled yearly as part of the Hudson Basin River Watch's Stream Bioassessment Institute training program. This will allow for continued trend monitoring and follow-up of the watersheds general water quality.



Biological Assessment Profile are values plotted on a normalized scale of water quality. The lines connect the means of four values obtained for each site and year, representing family richness, family EPT richness, family Hilsenhoff Biotic Index, and Percent Model Affinity. For more complete explanation the reader is referred to the 2002 Cataract and Millington Brook report available at: [www.hudsonbasin.org](http://www.hudsonbasin.org)