ITS GEOLOGY AND HYDROLOGY
The Black River – the Origin of its Name??

Likely the tannic-acid color derived from the forested and wetland areas in the Adirondack Mountains create the dark color of the water in these tributaries and to the Black River itself.

Tannins are derived from hardwood trees and some plant species growing in nutrient-poor, acidic environments, and from wetland bogs where plant decay is very slow.

The Black River, a much better name than “The Tannic Acid Colored River.......”
The Black River and its Watershed – *The Boring Facts*……..

- The Black River starts at North Lake (Herkimer County) at an elevation of 1,850 ft.

- The river is about 125 miles long and eventually discharges to Lake Ontario near Dexter, Jefferson County, at an elevation of 246 ft. The upper and lower reaches of the River have the most elevation change per mile, while the central section is fairly flat.

- Major tributaries that enter the Black River drain from the western flank of the Adirondack Mountains – the Moose, Independence, and Beaver Rivers.
Fulton Chain Lakes
(North Branch Moose River)
Flooded fields in the central Black River Basin
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- The Black River Watershed is about 1,920 square miles, with an average flow at Watertown of about 4,240 cubic feet per second – (~31,500 gallons per second).
Annual Mean Flow
(Black River at Watertown, NY)
and Annual Regional Precipitation
1921-2014

Annual Mean Flow, in cubic feet per second

Annual precipitation, in inches

Year
01/01/21 01/01/24 01/01/27 01/01/30 01/01/33 01/01/36 01/01/39 01/01/42 01/01/45 01/01/48 01/01/51 01/01/54 01/01/57 01/01/60 01/01/63 01/01/66 01/01/69 01/01/72 01/01/75 01/01/78 01/01/81 01/01/84 01/01/87 01/01/90 01/01/93 01/01/96 01/01/99 01/01/02 01/01/05 01/01/08 01/01/11 01/01/14

Annual precipitation, in inches
0 5 10 15 20 25 30 35 40 45 50 55

Annual Mean Flow, in cubic feet per second
0 1000 2000 3000 4000 5000 6000 7000
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- Some water from Forestport and other reservoirs can be routed to the New York State Barge Canal at Rome. (Forestport feeder canal to Boonville then to Delta Lake).
- The Hudson River-Black River Regulating District regulates discharges from their respective reservoirs – Black River – Stillwater and Fulton Chain Lakes Reservoirs.
Forestport, Woodhull and other reservoir water can be diverted south to the Barge Canal.
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- Water from the Forestport Reservoir can be routed south, to the New York State Barge Canal.
- The Hudson River-Black River Regulating District regulates discharges from their respective reservoirs – Black River – Stillwater and Fulton Chain Lakes Reservoirs.
- The river is otherwise regulated by dams in its upper and lower reaches. These dams are of the ‘run-of-the-river’ type, and now used for hydropower production.
Hydropower project near Watertown
Last control structure at Dexter, NY
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- Surface water supplies Watertown with drinking water while groundwater supplies most municipalities and homeowners in rural areas. Glacial deposits generally have more-consistent and better-quality water than that from bedrock.
Eastern extent of the Tug Hill Plateau primarily shale bedrock with limited water supply in bedrock, and very modest water in any glacial sediments.

Western extent of the Adirondack ‘Dome’ primarily igneous and metamorphic bedrock provide some water supply but glacial sediments provide additional sources of drinking water.

Terrace and lowlands of limestone bedrock, generally with fine-grained glacial sediments.
Physiographic Areas - Geologic Features

- The Black River Fault
- Lowlands
- Tug Hill Uplands
- Outwash Deltas
- Morainal Hills
- Foot Hills of the Adirondacks

Map based on U.S. Geological Survey digital data, 1:2,000,000, Universal Transverse Mercator projection, NAD83, Zone 18
Geologic Structure in the Watertown, NY Area

Bedrock fracture pattern, Black River at NYS-Route 3, Watertown, NY
Spelunkers Find Wallet Man Lost In NY Cave In 1996

09/11/2013 05:33 pm ET | Updated Sep 12, 2013

WATERTOWN, N.Y. — City of Watertown Department of Public Works officials say new protocol for restricting access to the newly-installed door to city’s underground cave system would likely ease worries among city officials and law enforcement.
Town of Pamela – Philomel Creek – Mid section - dry
Natural rapids downstream of Watertown, NY
The Current Water Resource Concerns within the Black River Watershed

Maintaining and improving the quantity and quality of water within the watershed.

Quantity of water is generally dependent on our climate, of which we understand is changing. Differences in the amount and timing of rainfall and snow melt may effect how much and when precipitation runs off versus infiltrates permeable glacial and bedrock aquifers and then appears as recharge to the river system.

Also, we need to carefully understand and manage our water resources for future users.

Quality of water is dependent on us:
1. How and where we manage, recycle/reuse, or eventually landfill the wastes we produce.

2. How we perceive, manage, and produce products from our industrial, agricultural, and forest environments to protect the quality of the water resources now, and into the future.

3. How we, as individuals, mange our water use and waste flows (i.e., septic systems) to protect surface water and groundwater resources now, and into the future.
Questions?