Groundwater in the Catskills

Challenges and Solutions

Rotary District 7170

The CATSKILL WATER DISCOVERY CENTER

Our Mission

THE MISSION OF THE CATSKILL WATER DISCOVERY CENTER is to educate people of all ages about the precious nature of, and threats to our planet's most vital resource — pure water.

Using the Catskill/Delaware Watershed as a living classroom, and the history and experience of those connected to this watershed, we will inspire people through programs, exhibits and events to care for, conserve and protect their water resources for the benefit of generations to come.

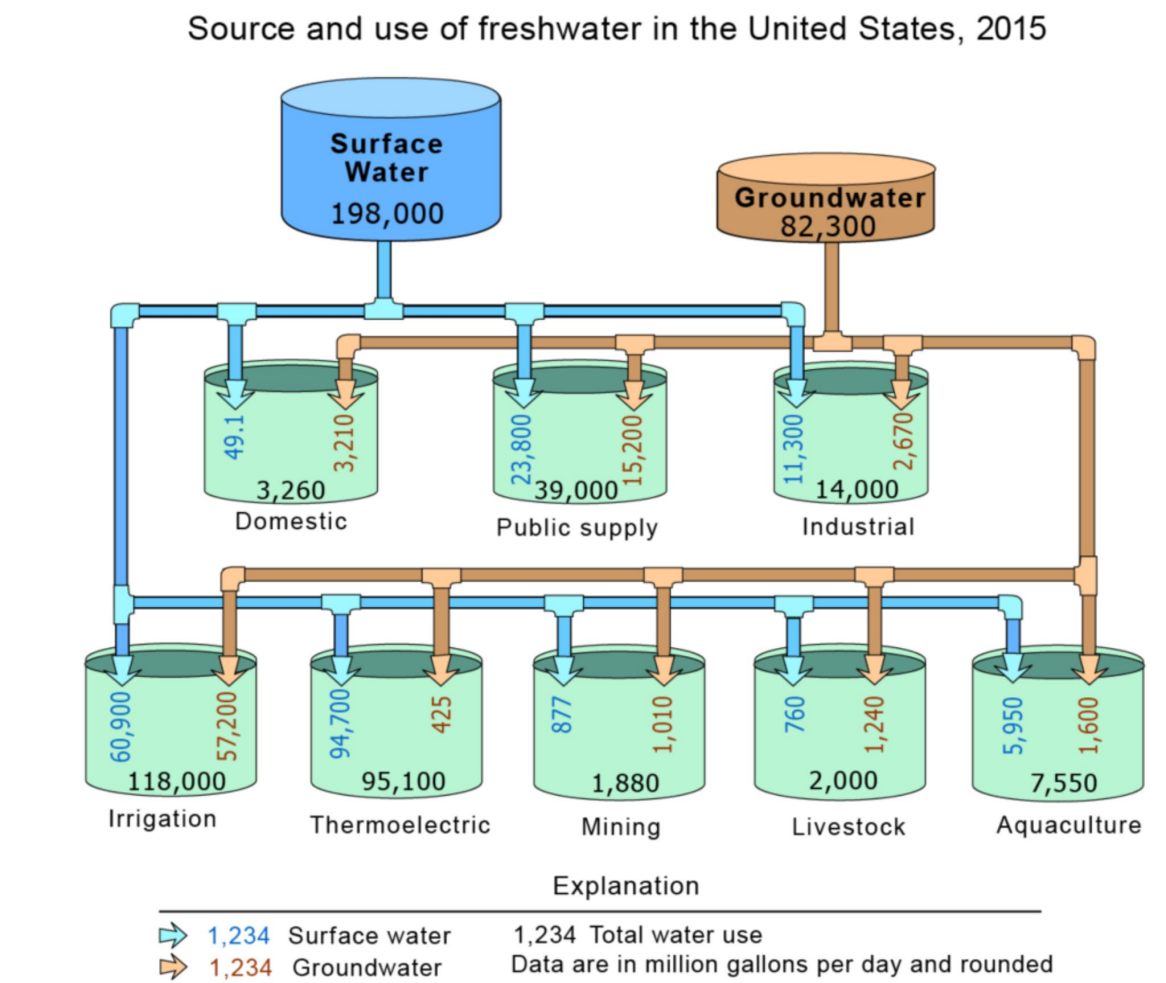
Agenda

9-10	Registration
10:00	Welcome Message Introduction Groundwater - Global and Local Context What is Groundwater and How Does Geology Impact Groundwater Quality? Private Wells - Concerns and Options Groundwater Protection How Surface Water Protections Help Groundwater
12:30-1:30	Lunch
1:30-2:30	Panel Discussion

Groundwater Global and Local Context

Groundwater is used for a variety of purposes - predominantly irrigation followed by public supply

Public supply: delivery to homes, businesses, and industries, as well as for community uses such as fire fighting, water services at public buildings, swimming pools, etc.



Groundwater Threats

Quantity and Quality

Lack of groundwater in sufficient quantity and/or quality poses:

- Food and drinking water insecurity
- Public health issues
- Concerns for water related industries

Is there enough groundwater?

- Nationwide groundwater crisis - groundwater levels are dropping
  - Climate change - variable rainfall events
  - Overpumping
    - Industrial, agricultural, food/beverage production, development, etc
    - Largely unregulated
  - Development
- We can see the changing groundwater levels here
- What about the Catskills?

Potential sources of groundwater pollution by human activities (Infographic: Adriana Vargas/IAEA).

What can impact groundwater quality?

- Industrial operations
- Septic Systems*
- Landfills
- Agricultural chemicals and operations - pesticides, herbicides
- Underground storage tank releases
- Runoff - road salt, oil sheens, trash
- Geology*

Full list here

Brief History of Industrial Operations

Major 19th Century Industries by Type & Watershed

Watershed	Tanneries	Sawmills	Furniture Factories	Cooperage Mills	Charcoal Kilns	Bluestone Quarries	*Totals*
East Branch of Delaware River	13	75	10	3	-	18	*119*
Neversink River	3	8	7	1	-	-	*19*
Schoharie Creek	25	74	28	5	-	14	*146*
Esopus Creek	16	73	38	27	19	45	*218*
Rondout Creek	1	8	2	4	-	-	*15*
Totals	***58***	***238***	***85***	***40***	***19***	*77*	**517**

SOURCE: Adapted from Kudish (2000:153).

Late 1800s - Business expansion via Ulster & Delaware, Delaware & Northern, and other railroads connecting Delaware County (and adjacent central New York counties) to NYC and other major metropolitan areas. Many industrial operations located near the railroad and/or streams.

1880 -1970 - Catskills remains one of the most important dairy farming areas in the US

Source

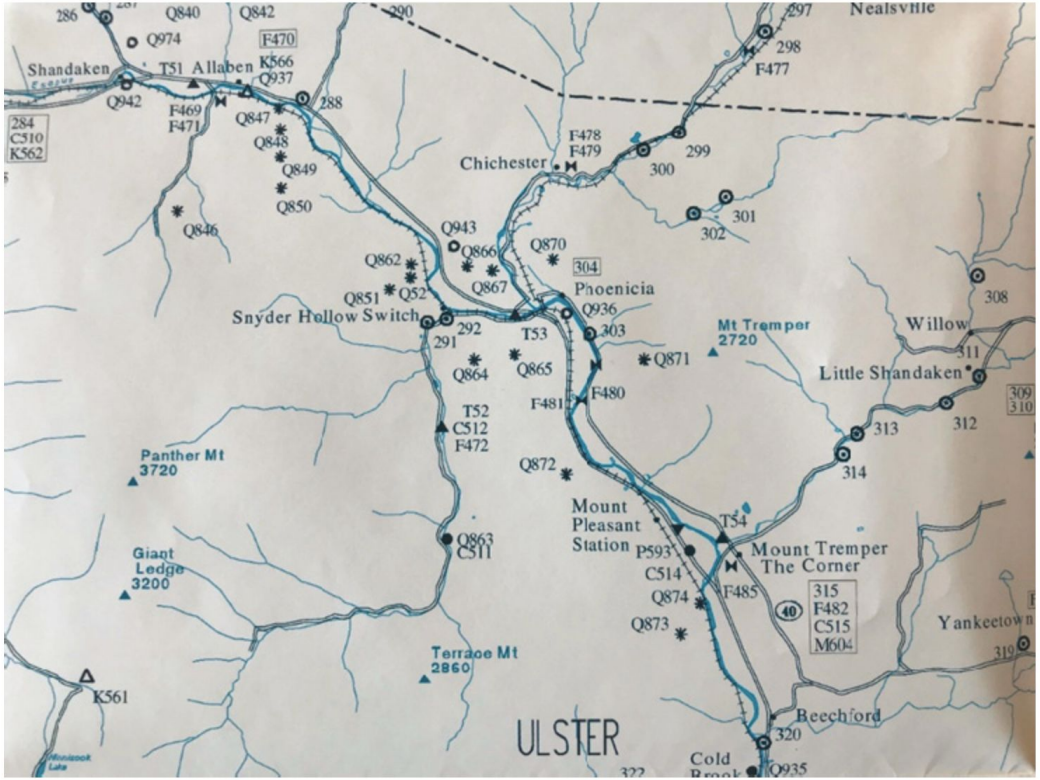


FIGURE 2-6 Tanneries (T#), furniture factories (F#), bluestone quarries (Q#), cooperage mills (C#), charcoal kilns (K#), sawmills (⊙ #), roads, railroads, and communities in the vicinity of Phoenicia, New York, Woodland Creek, Stony Clove Creek, and the Esopus Creek

Figure in color at https://www.nap.edu/catalog/25851/.

SOURCE: Kudish (2000). Courtesy of Michael Kudish and Purple Mountain Press.

Example - Long Island, NY

- Long Island is in the midst of a groundwater crisis
- Drinking water is supplied by an unconsolidated sole source aquifer
- Overpumping is causing both groundwater levels to drop and saltwater intrusion - this is exacerbated by rapid development (increasing users and decreasing permeable surfaces allowing rainwater to recharge)
- Municipalities have been required to treat their groundwater to remove harmful chemicals for many years

See this article for addition details