The Flow

Springfield Water & Sewer Commission

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More Information

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WHY INVEST IN WATER INFRASTRUCTURE?

⇨ New report from the US Water Alliance: Bridging the Gap: The Power of investment in Water.

Did you know…

- Approximately 87% of the U.S. population relies on drinking water from a community water system. In Kentucky, that number leaps to over 95%.
- 2/3 of Kentuckians receive drinking water sourced from surface water systems like rivers and lakes.
- In 2022 there were more than 152,000 publicly owned water systems responsible for distributing safe drinking water across the country.
- A water main breaks somewhere in the country every 2 minutes.
- Roughly 1.7 trillion gallons of drinking water are lost per year due to leaking pipes.

Reliable water is critical for supporting economic activity, many industries fall back on their water supply for uninterrupted production. Consistent water supply is also important for companies to ensure product quality, manage costs effectively, comply with regulations, and meet substantiality standards. Water Intensive Industrial Sectors - Gallons of Water Used per 2022 Dollar Output:

- **Food Manufacturing**: 297 gallons per $ output
- **Electric Power Generations:** 253 gallons per $ output
- **Textile Mills:** 71 gallons per $ output
- **Mining (non-oil and gas):** 46 gallons per $ output
- **Beverage and Tobacco Product Manufacturing:** 31 gallons per $ output
- **Amusement, Gambling and Recreation Industries:** 25 gallons per $ output

This past May, the US Water Alliance released Bridging the Gap: The Power of investment in Water. In this report they look at many factors around water infrastructure and its impacts on drinking water. They explain that investing in water at the same rate as the 2021 Infrastructure Invesment and Jobs Act (IIJA), would reduce the US infrastructure gap by $125 billion over 20 years. This would be enough to:

- Replace all lead service lines in the US twofold OR
- Fully fund a permanent federal customer assistance program at the estimated need of $5 billion annually for 25 years OR
- Repair or replace more than 25% of the nation's two million aging water mains.

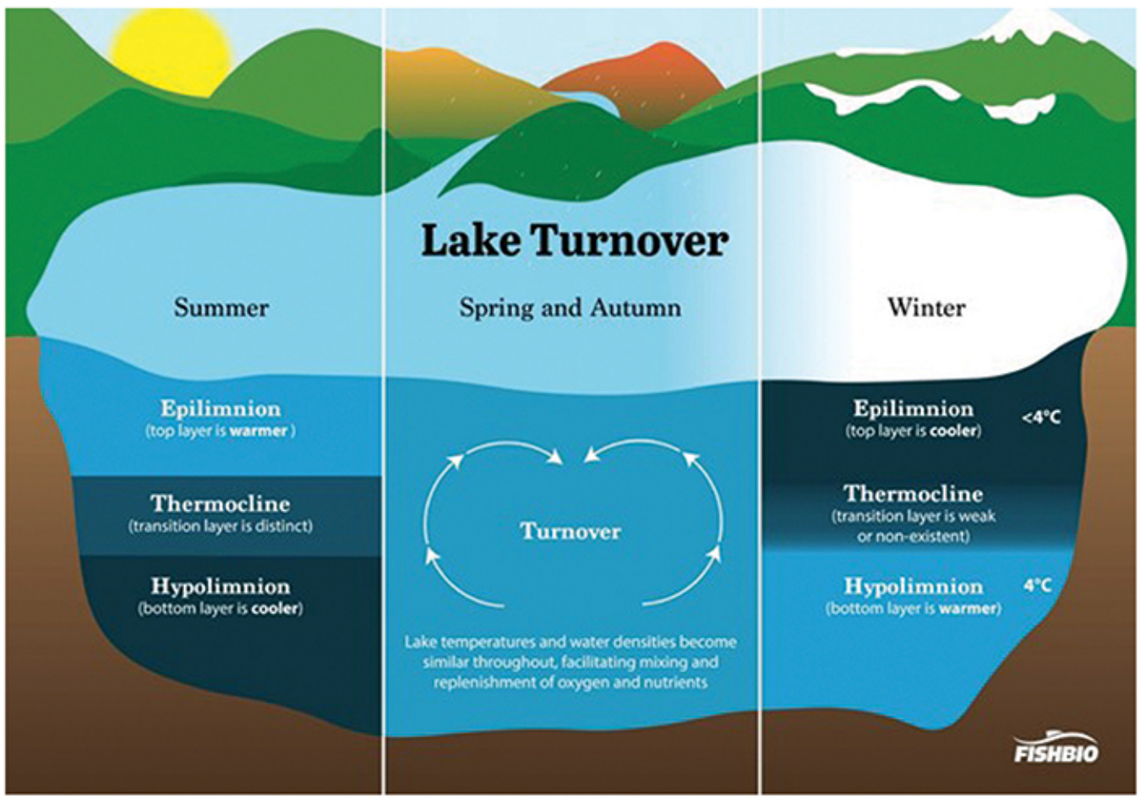
The report further states that many utilities still need to develop new water supplies and/or construct new storage facilities to meet and effectively manage future demand. These water systems were not designed in the light of climate change; due to this the older systems currently in place are not accustomed to frequent and intense droughts in some regions and increased precipitation and flooding in others. This is causing a strain on drinking water infrastructure and resources.

(Article taken directly from "Bridging the Gap")

EFFICIENT & HIGH QUALITY WATER SUPPLY

LAKE TURNOVER

Weather greatly influences raw water quality. When it rains, surface runoff clouds the raw water and turbidity increases, while alkalinity and pH generally decrease. In the summer, algae greatly impacts water quality and adjustments are made at the WTP in treatment strategies. Seasonal change is predictable – like lake turnover in spring and fall.



Lake turnover happens as significant seasonal temperature changes occur both in spring and in fall. During the winter and early spring, the top layer (epilimnion) of the lake is the coldest as it is in contact with the cold winter air. Just as ice floats to the top of a glass of water, the coldest (often icy) water is found at the top of the lake and warmer water settles to the bottom.

However, as temperatures start to climb in spring/summer, the top part of the lake is penetrated by the hot sun, significantly increasing water temperatures and allowing for photosynthesis. The lake is more significantly stratified during warm months and the temperature change throughout the water column is dramatic. The middle layer of the lake (thermocline or metalimnion) is where the sun cannot penetrate and is considered the transition layer. The bottom layer (hypolimnion) is where the cool water settles.

As these seasonal transitions occur, the lake is said to 'turnover' as water from the bottom layer rises to the top and vice versa. During lake turnover, water quality throughout the water column is relatively consistent. The minerals and sediments from the bottom of the lake are dispersed throughout the water column. Here at the WTP, the changes in water quality consist of higher concentrations of iron, manganese, and total organic carbon (TOC); lower dissolved oxygen. These changes require additional chemical additions and changes to standard operating procedures to maintain high quality tap water.

HISTORY OF THE CLEAN WATER ACT

Wells and latrines are some of the oldest forms of human-made water infrastructure on record, and our natural waterways were some of our earliest waste disposal systems. Sewer collection became more sophisticated as cities grew in the 1800s, but these typically weren't treatment systems, as they merely collected human and animal waste into pipes or trenches and discharged it directly into rivers, lakes, and oceans. As industrialization grew, more and more industrial runoff joined the organic waste in our nation's waters.

Fifty years ago, Congress held a series of votes on a piece of legislation called the Federal Water Pollution Control Act Amendments of 1972, which would later come to be known as the Clean Water Act. 1972 was an election year, and after a first term notable for its environmental policy achievements, then President Nixon vetoed the bill in an attempt to cast his fiscal conservatism against his already flagging opponent, George McGovern. Bipartisan majorities in both the House and Senate instead overrode President Nixon's veto, and the bill became law on October 18, 1972. Local leaders, like former mayor of Cleveland, Ohio, Carl Stokes, were central in the push of this legislation being enacted into law.

The Clean Water Act created a new permitting system for anybody discharging pollutants into the waters covered by the Act. It mandated, for the first time, a minimum standard of wastewater treatment for every community in the country. It paired that mandate with a new funding program recognizing that meeting the new standards would be expensive, leading to a major increase infrastructure over the next decade.

U.S. EPA CLEAN WATER ACT CELEBRATING 50 YEARS

Serving the cities of Springfield, Mackville, Willisburg and surrounding communities since 1951.

SPRINGFIELD WATER & SEWER COMMISSION