TUWaterWays

Water News and More from the Tulane Institute on Water Resources Law & Policy
October 16, 2020

Science!

These days, it seems like everywhere you look, there are problems. That applies to water, too. Water is so inextricably linked with life and economy, and it always seems like whatever we're doing, we're doing it the stupid way. Luckily, there are scientists and researchers all over working on smart ways to do things with and to water. Let's take a look at some of them, shall we?

Hydropower is something that has been a smart way to do things for millenia. However, since the time of Thomas Edison playing around with electricity, hydropower has been most often harnessed in bigger and bigger hydroelectric dams to the point where it regularly functioned as a massive disruption to river basins and the ecosystems dependent on flowing streams. That is why many evironmentalists have spearheaded efforts for dam removal to reinvigorate rivers and keystone species like salmon, often to stunning success. However, hydroelectric dams are a powerful energy source that are largely carbon-free, and researchers have learned over the years that there are ways to adapt them and operate them in a much less-harmful way. That's why dam operators and major river advocate groups like American Rivers have called something of a truce for the first time in decades. The two sides said that they would work together on policies to maximize power generated, retrofit existing dams, and remove dams that are no longer useful. This comes at a great time, because researchers are figuring out that one new way to maximize the power generated by hydroelectric dams is to float solar panels on the reservoirs behind them. It saves on the cost of buying land to locate the panels, and the panels can connect to the same electrical grid that the dam is connecting to. Just speculating here, but one ecological issue caused by those dams is that the water temperature in the reservoirs gets much higher than it would in the flowing stream, so perhaps the shade provided by the floating solar panels could have a secondary benefit of cooling the temperature in the water ever so slightly. Pretty smart!

Now let's take a look at what scientists are doing with chemicals. One issue that keeps public health officials and homeland security types awake at night is the soluability of nerve agents (not the band, but they probably scare some people, too). Nerve agents, like sarin, are very soluble in water, so if some ne'er-do-well got their hands on some and dropped it into a water supply system a whole lot of people would get hurt really badly. Up until now, there hasn't been a way to destroy those nerve agents in the water. You could use activated carbon to filter them out, but not destroy them. Molecular scientists from Universitat Valencia (established 1499 and still to match up

Coming up:

CPEX Virtual Growth Summit: Time to Define the New Normal: Dr. Michael Oppenheimer on Our Future Climate; October 20

CPRA Board Meeting; Baton Rouge, LA; October 21

Council on Watershed Management Meeting; October 22

CPEX Virtual Growth Summit: Cilmate and COVID-19: The Diabolical Duo; October 22

Drinking Water Webinar: Disinfectants and Disinfection Byproducts; October 27

Health Effects Associated with Harmful Algal Blooms and Algal Toxins; October 28

CPEX Virtual Growth Summit: Relapse or Resilience: Healthy Community Design; November 5

AWWA: Swan International Smart Water Symposium; Virtual/Denver, CO; November 10-11

Property Values and Water Quality: Supporting Decisions with the Hedonic Model; November 18

Water jobs:

Water Rights and Instream Flow Specialist; Montana Dept. of Fish Wildlife and Parks; Helena, MT

Programme Associate; Global Water Partnership; Stockholm, Sweden

Associate Attorney; Earthjustice; Seattle, WA

Staff Attorney; Delaware Riverkeeper Network; Bristol, PA

Senior Specialist (Water Stewardship); Gap, Inc.; San Francisco, CA

Hydraulics and Hydrology Lead; Dewberry; Raleigh, N.C.

Great Lakes Equity and Justice Partnerships Senior Coordinator; National Wildlife Federation; Chicago, IL

Surface Water Storage Fellowship; EPA; Cincinnati, OH

against Tulane in any sport that we know of) have [created metal-organic-frameworks](#) that could act on those nerve agents like enzymes and destroy them. [Smart](#)!

Last, but not least, Silicon Valley has turned its attention to water. We now live in the age of Big Data; it's the ability of companies like Amazon or Microsoft to collect, organize, store, and make available that data that's now at the heart of their value. But here's the thing – all that data, everything from medical records to the latest TikTok dance – depends on water. That data is stored in "the cloud" but really "the cloud" is a network of massive sites called server farms, farms that need water like any other. Server farms need a whole lot of electricity, and electricity is almost never made without water, but they also need water themselves for cooling. So [water has become a majorly important issue for Silicon Valley](#). The biggest tech companies are working to make their water use more efficient, but also working to apply big data to everyone's water use. As their water and energy footprints continue to grow, it only makes sense. Hopefully their innovations can benefit everyone down to people who are just hoping for clean water to drink at a cost they can afford. Now that would be [next-level smart](#).