

# the Watershed Watch

Newsletter of Salt Lake County's Watershed Planning & Restoration Program

Winter 2020/2021, Issue 22

## Inside

Hosting our first virtual  
Watershed Symposium  
*page 2*

What's so bad about stormwater?  
*page 3*

## Happenings

**#LoveYourWatershed Fridays**  
*Every first Friday of the month, pledge to help our watershed and share your photos and experiences*

*Jordan River Commission*

**Global Change and Sustainability  
Center Seminar Series**  
*University of Utah*

**Research Landscapes: "Xero to Hero:  
Resource positive landscapes that give  
more than they take"**  
*March 2, Utah State University*

**Seven Creeks Walk Series**  
*March 21, Seven Canyons Trust*

**Wallace Stegner Center 26th Annual  
Symposium "The Plastics Paradox:  
Societal Boon or Environmental Bane?"**  
*March 25, University of Utah*

**Great Salt Lake Issues Forum**  
**"Great Salt Lake: The Gift That Keeps On  
Giving, Just Add Water"**  
*May 12-14, FRIENDS of Great Salt Lake*

## Recognizing how leaf litter affects dissolved oxygen levels in the Jordan River

*by Salt Lake County Stormwater Coalition*

As our understanding of the physical and biochemical dynamics of the Jordan River improves, so does our ability to link pollutants of high concern with their sources. One type of pollutant we take very seriously is anything with the ability to remove dissolved oxygen from waterways. Investigations of oxygen impairment in the Jordan River have been quite numerous over the years, and current research has re-prioritized the negative impacts that leaf litter can have on stream health.

The presence of a sufficient concentrations of dissolved oxygen is critical to maintaining the aquatic life and aesthetic quality of streams and lakes. Biological oxygen demand

(BOD) generally represents how much oxygen is needed to break down organic matter in water. Broadly speaking, oxygen demand in waterways can occur in two places, the water column itself (normally associated with bioconversion of wastes from farms and water treatment plants) and from the sediment on the streambed below (think organic matter decomposition over longer timescales).

Historically, investigations of oxygen impairment in the Jordan River focused on BOD within the water column, but recent studies have shown that sediment decomposition has more a significant impact on reducing dissolved oxygen than originally thought. Studies conducted by University

*(continued on page 4)*



*Leaf litter and other organic components of streambed sediments are more responsible for reduction of dissolved oxygen in streamwaters than originally thought. Translation: collect and compost leaves and other yard waste to keep them out of storm drains and streams!*

**SL**  
**SALT LAKE COUNTY**  
**WATERSHED**  
Watershed Planning  
and Restoration  
2001 S. State Street  
Salt Lake City UT 84190  
(385) 468-6600  
[slco.org/watershed](http://slco.org/watershed)



# Hosting our first virtual Watershed Symposium

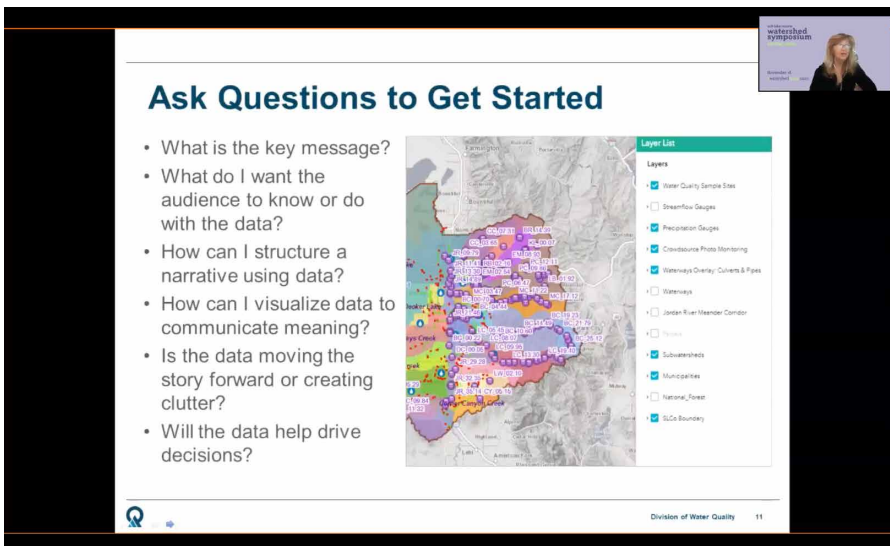
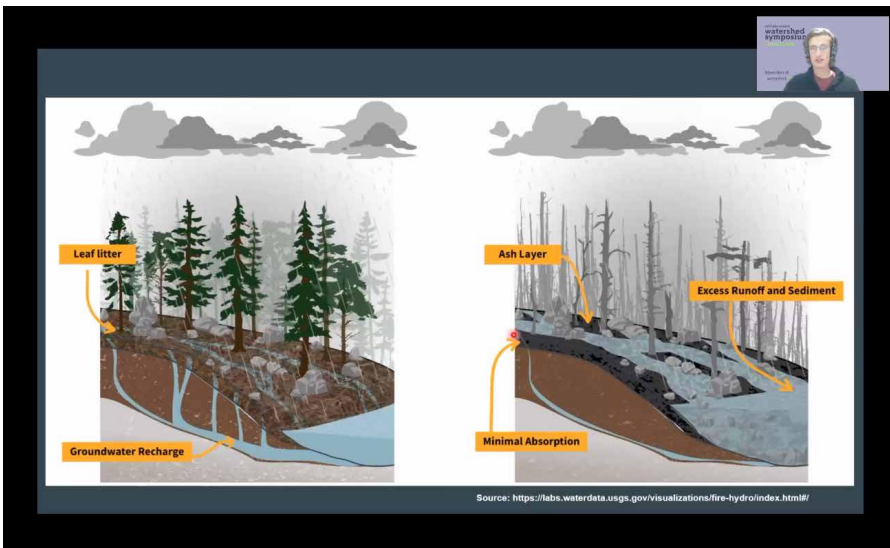
by Watershed Planning & Restoration

Free and open to all, the Salt Lake County Watershed Symposium is one of the best opportunities to network and build relationships toward supporting a healthier watershed in our region. Participants from nonprofit, government, business, and academic organizations gather each year for varied and thought-provoking presentations that address watershed and water quality issues in Salt Lake County and beyond.

On November 18, 2020 we hosted the 14th annual Watershed Symposium as a virtual event. Our first (and hopefully last) in a virtual format. In this time of physical distancing, we felt it was more important than ever to collaborate and connect however possible. Since 2007, we (Salt Lake County's Watershed Planning & Restoration Program) have hosted the Symposium. This conference fulfills an important part of our Program mission to engage the public and stakeholders on issues related to watershed health.



Putting on the virtual show, Salt Lake County's Watershed team! Clockwise from top left: Bob Thompson, Lynn Berni, Hannah Murphy, Mark Roia, and Sam Taylor.



Live sessions at the virtual Watershed Symposium included: "Wildfires Can Rock You Like a Hurricane" (Mitchell Greenhalgh, BYU) and "Tell Your Story: Turning Watershed Data into a Compelling Narrative" (Christine Osborne, Utah DEQ).

One of the best bits of feedback we hear each year is how much people look forward to the Watershed Symposium for all the great networking opportunities with their community of water stewards. So we were a little nervous about actual participation, given the switch to a virtual format. That said, we were surprised and delighted at the number of abstracts submitted for presentation! Way more than expected, as we had planned a much smaller program than typical; one day versus two, and consecutive sessions versus two concurrent tracks. With limited space for live sessions, the balance of abstracts selected were pre-recorded and made available as On Demand sessions during the conference. Keynote speaker Pat Shea, former national director of the BLM and retired University of Utah professor, kicked off the Symposium with his perspectives on the importance of water management and storage. "We need as a state, and as a nation, to better understand the geology of our region," he urged, "to identify existing aquifers and determine the quantity and quality of usable water found underground." As Pat reminded us, the Wasatch Watershed is our future.

Technical difficulties aside (our apologies for any and all), we're calling the 2020 virtual Watershed Symposium a success! Thank you to everyone who participated.

Visit the event site for the full program, live session recordings, on demand session videos, speaker directory, and more at: <https://watershedsymposium2020.sched.com/>. □

# What's so bad about stormwater?

by Watershed Planning & Restoration

**S**tormwater is the official name for water that originates from rain or melting snow and ice. In Salt Lake County, we get an average of 22 inches of precipitation a year. When it rains or snow melts, where does the stormwater go? It's important to be aware of where stormwater comes from and where it goes, because it can impact water quality in your local watershed. Pollutants, flooding, erosion, and property damage can all result from uncontrolled stormwater runoff in developed areas.

In natural landscapes, such as forested areas, forest soils can absorb up to 18 inches per hour of water. This is good and it's called infiltration. Developed areas are another story. The average

lawn allows for only about 2 inches per hour, and impervious surfaces like pavement and rooftops offer no infiltration at all. All the water that doesn't infiltrate is called runoff.

When runoff flows across our lawns, driveways, and roads it picks up fertilizers, pet waste, engine oil, and more. These pollutants are transported straight into our streams, rivers, and lakes. No filters. No treatment. Why? Because the storm drain system (roadways, gutters) flows directly to our local waterways. This differs from the sanitary sewer system (toilets, showers, sinks) where wastewater is sent to a treatment plant. Even soil can be considered a pollutant when excess sediment washes into the storm drain and clouds up our waterways.

**Stormwater runoff is a major cause of water pollution in our nation's waterways, and one that is extremely difficult to regulate.**

The sheer volume of stormwater generated by impervious surfaces adds up quickly. Consider the stormwater running off the roof of your home and garage and down your driveway. If a home has 2,000 square feet of impervious surfaces, that's equal to 1,246 gallons of stormwater runoff that need to be managed during a typical rainstorm. That's a lot of water that needs somewhere to go! Now multiply that by all the developed areas in the watershed. Downtowns, neighborhoods, sidewalks, parking lots, local roads, highways, and so on. As stream volumes grow larger with increased runoff from all these impervious urban surfaces, streams flow faster and flooding risk increases. This leads to a higher probability of erosion, degraded water quality, and property damage.

Understanding stormwater is the first step to making good choices and being a good neighbor in your watershed. Homeowners, businesses and industries can all work together with municipalities to help manage stormwater and its potential impacts. There are local ordinances and regulations for the control of stormwater runoff in your municipality. These ordinances determine the best ways to manage stormwater for the benefit of local residents and businesses, as well as for the overall health of the watershed. For more information about stormwater, please visit the Salt Lake County Stormwater Coalition website, <https://stormwatercoalition.org/>.

For more information about stream and watershed health, visit the Salt Lake County Watershed Planning & Restoration Program website, <https://slco.org/watershed/know-your-local-waters/>. Check out our Stream Care Guide too, <https://slco.org/watershed/resource-center/guide-books/>! □



*Stormwater picks up all kinds of nasty stuff on its way to the storm drain: gasoline, pesticides, trash, unscooped pet poop, and more. Storm drains carry these pollutants directly into our streams and lakes. No filters. No treatment.*

Photo © Colorado DOT

## LEAF LITTER

*continued from cover*

of Utah at 1300 S and the Legacy Nature Preserve<sup>1</sup> found that, given appropriate conditions, underlying sediments are capable of reducing 72-97% of dissolved oxygen, a much larger share than typically attributed to sediments alone.

Other studies along the Jordan River<sup>2</sup> have used stable isotopes of carbon ( $\delta^{13}\text{C}$ ), nitrogen ( $\delta^{15}\text{N}$ ), and hydrogen ( $\delta^2\text{H}$ ), to trace sediment organics back to their original sources. Researchers discovered that seasonal terrestrial sources, such as autumn leaf litter, actually composed the majority of coarse sediment organics and accounted for roughly 50% of fine sediment organics. Moving forward, organic matter from terrestrial sources will require a re-evaluation in the larger Jordan River dissolved oxygen budget, as tributaries such as Big Cottonwood Creek, Little Cottonwood Creek, and Mill Creek contribute approximately 200 tons of coarse organics yearly.

Reducing leaf litter, grass clippings, and other yard waste in waterways may have other positive effects too, such as encouraging helpful river

species populations. In a technical report submitted to the Wasatch Front Water Quality Council, Richards et al. postulates that non-native macroinvertebrates, such as the Asian clam (*Corbicula fluminea*), and New Zealand mudsnail (*Potamopyrgus antipodarum*) are actually having a net positive impact on river quality. These macroinvertebrates can remove suspended organics between 1-20  $\mu\text{m}$  and algae between 50-170  $\mu\text{m}$ , lowering turbidity, establishing benthic algae communities, and encouraging photosynthetic oxygen production. Because these macroinvertebrates prefer well-oxygenated soils that are low in organics; decreasing terrestrial organics loading simultaneously improves their habitat, and increases filtration capacity with population density.

While we can't stop the leaves from falling, we can identify the Jordan River tributaries, and individual stream segments, that are passing on more than their fair share of organics downstream. Fortunately, great efforts are already underway to divert terrestrial organics away from waterways. Salt Lake County's Stormwater and Watershed Programs

have a long history of education and resource programs aimed at empowering the general public to better manage their yard wastes. Leaf collection programs, such as the those provided by the Wasatch Front Waste Recycling District, are doing great work. Operating from October to December, these programs collect 1,500 tons of leaves annually in Townships such as Cottonwood Heights, Millcreek, and Emigration Canyon. To those working in these programs, and to everyone who takes the time to properly dispose of their yard waste, from all of us at SLCo we thank you!  $\square$

### References:

<sup>1</sup>Goel, R. and S. Abedin. 2016. *Nitrogen Dynamics in the Jordan River and Great Salt Lake Wetlands*. Department of Civil & Environmental Engineering, University of Utah. [https://collections.lib.utah.edu/dl\\_files/33/10/331069bffa3a68c06c06a2cf323acf9c58fee15.pdf](https://collections.lib.utah.edu/dl_files/33/10/331069bffa3a68c06c06a2cf323acf9c58fee15.pdf)

<sup>2</sup>Epstein, D., J. Kelso, and M. Baker. 2016. *Beyond the urban stream syndrome: organic matter budget for diagnostics and restoration of an impaired river*. *Urban Ecosystems*. <https://link.springer.com/article/10.1007/s11252-016-0556-y>

## Get yourself a copy of our Stream Care Guide. Find out how to protect water quality, create wildlife habitat, preserve property values, and prevent flood losses.

The basics of stream care are straightforward, but they do require active participation. This handbook is free and available from the Salt Lake County Watershed Planning & Restoration Program. Download the PDF from our website, or request a print copy.

<https://slco.org/watershed/resource-center/guide-books/>

