

# Behind the Scenes

September 2019



Dear Friend,

Waking up with that chill in the air and watching the leaves turn to shades of red, gold and bronze, it is pretty clear that we have turned the corner from summer to fall. At the LWC, this time of year finds us at the start of our in-water project work at the South Fork Pedee Creek Enhancement site and conducting invasive weed treatment within our Ash Creek and Maxfield Creek revegetation areas. October also marks the end of our stream temperature monitoring season, meaning that LWC Monitoring Coordinator Caleb Price and his team of amazing volunteers have been busy pulling out our loggers and downloading data from 31 monitoring sites around the watershed.

In the midst of our busy fall season, Caleb has taken the time to give you a preview of an exciting new real-time monitoring project that he has launched at Maxfield Creek with support from American Fisheries Society, Meyer Memorial Trust and Oregon Department of Fish and Wildlife. Read on to learn more about this project, and get the latest info about some terrific upcoming opportunities to get outside, and to learn more about our watershed!

Happy reading,

--Suzanne Teller, LWC Outreach Coordinator (contact me at [Outreach@LuckiamuteLWC.org](mailto:Outreach@LuckiamuteLWC.org) or 503-837-0237)

## UPCOMING LOVE YOUR WATERSHED EVENTS

Registration is open for the events listed below, and more! Make sure to head to our website today to register before they fill up!



### **Bilingual Bird Walk / Paseo de Pájaros Bilingüe!**



October 12 / 12 de Octubre @ 8:00am - 12:00pm  
Baskett Slough National Wildlife Refuge (10995 Oregon 22, Dallas)  
**\$8 for Friends of the LWC\* / \$8 para Friends of the LWC\***  
\*Kids under 12 are free! / ¡Los niños menores de 12 años son gratis!

Join us for a family-friendly bilingual fall bird walk at Baskett Slough National Wildlife Refuge's Guadagno Memorial Loop Trail. Register today at <https://www.luckiamutelwc.org/bilingualbirdwalk-friends.html>

Únase a nosotros para una caminata bilingüe de pájaros para familias a lo largo de Guadagno Memorial Loop en el Refugio Nacional de Baskett Slough. Regístrese en <https://www.luckiamutelwc.org/bilingualbirdwalk-friends.html>

### **Jont Creek Tour, Part II**



October 26 @ 12:30pm - 3:30pm  
We'll meet at **Sarah Helmick State Park** for carpooling - see website for details and registration info!

Join us for our second tour of the Jont Creek project site and get a progress update on a restoration project that will open up critical wetland habitat on a 900 acre privately owned farm. You'll see and hear first-hand how partnerships between individuals and public agencies can have a huge impact on watershed health in our region. RSVP at <https://www.luckiamutelwc.org/jontcreektour.html>

Your Land. Your Rivers. Your Community. Your Watershed.

# Watershed Notes

## Monitoring Water Quality Data in Real Time: An open-source win-win in Kings Valley

by Caleb Price

*\*Special thanks to Phil Larson and Bill Price for their invaluable assistance with this project!*

Weather conditions have a bearing on all our outdoor pursuits. Real time weather monitoring is an incredibly valuable tool that allows us to check those conditions in the comfort of our own home, so we can be prepared for our adventures.

In watershed management, when we want to monitor the conditions in our streams and rivers, we deploy self-contained sensor units (called data loggers) in the stream channel. These data loggers record data points at set intervals (e.g. every hour) until they are collected from the field and returned to the office, where the data is downloaded for analysis and application in projects. For the LWC, this means that the water quality data won't be viewed until the end of the monitoring season, which runs from May to early October.



A screenshot of the real-time data dashboard at Maxfield Creek showing current water level, air and water temperature, barometric pressure. <https://realtime.luckiamute.net>

Imagine if we had a similar tool for monitoring watersheds as we did for checking the weather. Currently, the cost of commercially available equipment puts that option out of reach for watershed practitioners with limited budgets. However, open source technologies are making it possible for those with the pluck, passion, and perseverance to build their own affordable real-time monitoring stations.

In early 2019, the LWC and the Kings Valley Charter School (KVCS) received a grant award from the Oregon Chapter of the American Fisheries Society to build and deploy a real-time monitoring station on Maxfield Creek in rural Benton County. This funding enabled LWC Monitoring Coordinator Caleb Price and several volunteer assistants to build the monitoring station infrastructure during the summer months, and successfully get it online in mid-August.

One of the objectives of the project is to provide unique opportunities to students at KVCS. By pairing field activities with classroom exercises using data, student gain hands-on experience with setting up monitoring stations, collecting data, and then analyzing and using that data to inform management actions and restoration activities. This project also aims to help students build skills in STEM fields, learn about the management of aquatic resources, and think critically about these concepts and their application for conservation purposes.

Currently, the station collects data on water and air temperature, barometric pressure, water level (or "gage height"), and supplemental data to monitor the performance of the system. The two chief components of the system are the "node", or remote monitoring site, which is located near Maxfield Creek, and the "gateway", which is installed on-campus at KVCS.

Every fifteen minutes, the node measures a value from each of its sensors and sends a data packet over high-frequency radio to the gateway, which listens for incoming transmissions. When a data packet is received, the gateway controller writes the new data to a cloud database that serves the data to a real-time dashboard online. This entire process takes about two minutes to complete.

The potential application of the technologies used in this project for water quality monitoring are vast, and could one day soon become the new standard at locations that are conducive to implementation. This could allow for monitoring of water-quality in remote areas of the watershed, and in places where having access to the data in real-time would benefit active project planning.

All in all, this project has opened the door to a world of possibilities for both KVCS students and staff, and the LWC community as a whole. By taking concepts of stream ecology, hydrology and biology from the academic realm and applying them to a real-world conservation effort, the project helps demonstrate how everyday people can take action to help conserve natural resources. By facilitating access to real time water quality data to the entire community, the project can foster a more intimate connection for all of those who live, work, study, and play in the Luckiamute watershed.

You can access the real-time data dashboard at <https://realtime.luckiamute.net>

**Latest Project News:** We just received some more good news a few days ago - the real-time monitoring project was awarded a mini-grant of \$1,750 from the Oregon Department of Fish and Wildlife Salmon and Trout Advisory Committee (STAC) to purchase additional water quality sensors and monitoring equipment! Stay tuned for more updates about this project, including a student tour of the monitoring site, in the coming months!