



Colorado Non-profit Manages Influx of Water Quality Data for Healthy Headwaters

“Good water quality benefits everyone,” says Jane Tollett, Director of Grand County Water Information Network (GCWIN).

In practice, assessing the watershed and the health of the region’s Colorado and Fraser Rivers is a tall order. There is a limited amount of water, with the Upper Colorado Watershed supplying water to meet both the local needs of residents, ranchers, cold-water fisheries and recreation, along with eastern slope agriculture and the increasing populations along the front range from Denver to Fort Collins.

Amid these growing water concerns, Tollett and her organization are working to wrangle the many monitoring and education programs across Grand County, Colo., into a comprehensive network for water quality data and stewardship. GCWIN works with both East and West slope entities to help assess water quality.

GCWIN’s data-based approach just got a little easier in May when it acquired its own YSI 6600 V2-4 sonde, a sophisticated piece of equipment for measuring water quality. The instrument purchase was made possible by a grant from the Sprout Fund of the Grand Foundation.

“It’s really brought our whole monitoring program to the next level,” notes Tollett, following four months of using the sonde in monthly river monitoring regimens. The sonde collects data on temperature, dissolved oxygen, specific conductivity, pH, and turbidity—the background data necessary for characterizing water quality.

For example, the rivers support several cold-water fisheries, and these fish prefer temperatures in the 50-65 degree Fahrenheit range. GCWIN has documented a rise in water temperature in some rivers into the 65-70 degree range during July and August; this summer temperature might sound tepid to us, but it is harmful to the fish. Catch-and-release fishers are advised to carry thermometers and fish earlier in the day to ease the stress on the fish.

Other parameters tell different stories. Turbidity measures the clarity of water in lakes and rivers, something that residents around Grand Lake have seen varies with flow direction in and out of Grand Lake when water moves through the Colorado-Big Thompson system to northeastern Colorado. Conductivity is a measure of water’s ionic strength and can be an indicator of undetermined pollutants.

Tollett would like to add a chlorophyll or phycocyanin sensor to the sonde so that the program can take measurements for blue-green algae. Currently samples are analyzed weekly with PPIA (protein phosphatase inhibition assay) to determine if algae blooms are occurring in the lakes. With an *in situ* sensor, the team can conduct instantaneous cell counts which could reduce the number of lab analyses, a cost-saving benefit.



Jane Tollett of GCWIN collects river and stream water quality data with a YSI sonde. All data is shared in a public database called WILBUR.

Spreading the word about water

Sarah Hershfelt, GCWIN field tech, takes the sonde with her to check local lakes, where she is often accompanied by a high school volunteer. Or the sonde travels with GCWIN and busloads of students on field trips during “Watershed Week.” The students take turns dangling the sonde over a bridge and into the water to take measurements.

“The YSI sonde is a cool, high-tech gadget that students get into,” notes Tollett. “The heavier 6600 has been helpful in sinking quickly in the lakes and rivers to make our sampling safer when we had incredibly fast and high flows this spring,” she adds approvingly.

GCWIN focuses on bringing STEM (Science, Technology, Engineering, Math) education to students and getting them excited about their surroundings. Tollett is energized by her organization’s mission to work with young people: “We are creating future stewards to look after the area’s natural resources.”

Better data, better decisions

Among future plans for GCWIN is to get more adults and decision-makers from the community involved in understanding the health of their water. Recently one of the organization’s Board members was nominated for a Heroes of Conservation award from *Field & Stream* magazine. The magazine noted, “Better data, better decisions, that’s what’s going to save the water of Colorado.”

With new equipment feeding data into its public database—“WILBUR,” GCWIN is well-positioned to steer this conservation effort for northern Colorado’s clear and cold streams.

About Grand County Water Information Network

GCWIN is a non-profit collaborative effort to enable better decision-making through science-based water quality monitoring, information-sharing and educational programming.